SIEMENS

Display

TD

Replacements of Parts

Display

19" Color TFT Monitor (DSC 1905-DC)

Valid for Part No. 086 83 984

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Document revision level

The document corresponds to the version/revision level effective at the time of system delivery. Revisions to hardcopy documentation are not automatically distributed.

Please contact your local Siemens office to order current revision levels.

Disclaimer

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Safety Information

Assuming a complete replacement, no contact points for line power, etc. are present.

NOTE

ARTD-002.732.17.. (Safety-technical Regulations for Installation and Repair) must be observed.

⚠WARNING

Certain components inside the units are under high voltage!

If there is contact with these components, it can cause damage, serious bodily injury or death.

➪ **Do not open the monitor housing; this is not necessary in a service situation.**

⚠WARNING

A damaged power cable can lead to fire or electric shock!

If these components are operated with a damaged power cable, it can cause damage, serious bodily injury or death.

➪ **Use only power cables that are in good condition! When unplugging the power connector, hold the power cable only by the connector.**

⚠WARNING

If objects are inserted into the housing, this can cause electrical shock.

This can cause damage to the unit, to other damage, serious bodily injury or death.

➪ **Do not insert objects into the housing!**

⚠WARNING

When handling connection cables, no contact with the patient may be made.

This can cause damage, serious bodily injury or death of the patient.

➪ **Do not connect the unit in the patient area!**

Monitor Remarks

- A laptop is not required for adjustment. All adjustments can be performed in an on-screen menu, accessible using the push-buttons (front of frame).
- Power switch:
  - The display has a power switch (on the back); seen from the front, this is located on the left, behind the front frame.

LCD Monitor, 086 83 984

Tab. 1 Front view

- The DSC 1905-DC (model designation) is a high-resolution 19" color TFT monitor.
- It is always shipped without a console base.
  - Table application:

    A base can also be shipped and if necessary, can be also ordered as a replacement part.
  - DCS application:

    Installation is performed using the VESA adapter. Installation is made without any space between using a rubber seal that runs all around; the displays appear as a single surface.
- OSD (on-screen menu):

  Adjustment of the monitor is performed using the push-buttons on the front bottom right, see Pos. 3.
- Power switch

  As seen from the front, a power switch is present on the back left (rear), see Pos. 1.
- Operating display:

  The monitor status is indicated by the LED, see Pos. 2.
  - Green => switched on
  - Yellow => energy saving mode
  - Blinking yellow => energy saving mode, digital only.
  - Slowly blinking yellow => switched off, power switch on.
  - The brightness of the LED can be adjusted in the OSD menu. The system is "timed" when shipped.

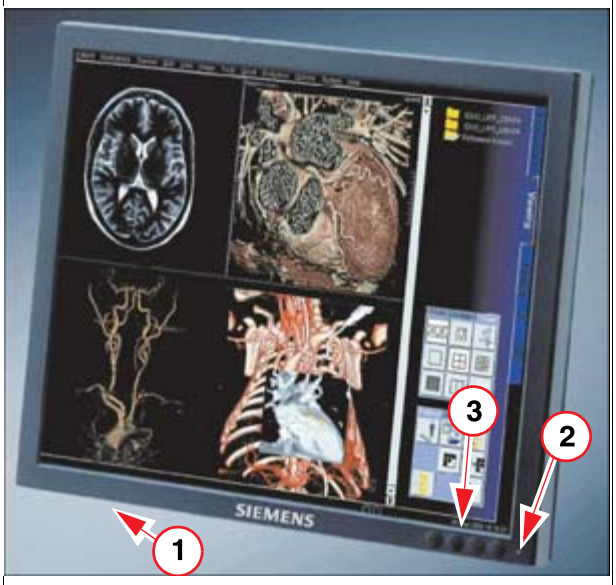


Fig. 1: 19" Color TFT Monitor, "DSC 1905-DC"

Pos. 1 Power switch (on back)

Pos. 2 Power LED

Pos. 3 OSD buttons

Tab. 2 Rear view

The connection panel is located under the base; in other words, the base must be removed to gain access to the connections.

The power switch (Pos. 6) is also accessible in the base; seen from the front, it is located on the left behind the front frame.

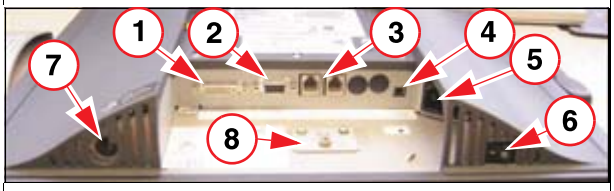


Fig. 2: Connection panel DSC 19....

Pos. 1	DVI-I Input
Pos. 2	VGA Input (D-Sub).
Pos. 3	RS232 (service only)
Pos. 4	5V/1A output
Pos. 5	Power connector
Pos. 6	Power switch
Pos. 7	used only with SMfit ACT (currently not used on AX systems)
Pos. 8	Ground connector

Technical Data

Power Supply	Voltage range => 100V to 240V,+/-10% / 50/60Hz. Power consumption => max. 75 W
Inputs	1 x DVI-D (digital) 1x Sub-D (analog)
Resolution	max. 1280 x 1024 (format filling)
Background Brightness	280 cd/m^2, typical Status when shipped: 137 cd/m^2
Contrast Ratio	450:1, typical
Environment	**Transport and Storage (in original packaging):** Ambient temperature: -20 to +60°C Barometric pressure: 1040 hPa to 674 hPa Relative humidity: max. 75% at +25°C, without condensation. **Operation:** Ambient temperature: + 5°C to + 40°C Barometric pressure: 1040 hPa to 674 hPa Relative humidity: max. 75% at +25°C, without condensation.
Installation	Heat dissipation is achieved by “natural" convection; a fan is not installed. The free setup height as well as the side and rear distance must be at least 100 mm. Installation of a DCS is permitted.
Weight	Display: 5.8 kg (without the base) Display with packaging and base: approx. 9 kg

Pixel Defects:

Pixel defects that meet the following specifications may not be returned as defective!

Tab. 3 Pixel Defects

Light Pixel Defects (dot = sub pixel)	**Maximum Number**
1 individual dot (R,G or B)	4
2 joined dots (R,G or B)	1
3 joined dots (R,G or B)	0
Maximum dots	4
Dark Pixel Defects (dot = sub pixel)	
1 individual dot (R,G or B)	8
2 joined dots (R,G or B)	2

3 joined dots (R,G or B)	0
Maximum dots	8
Total light and dark pixel errors:	10

General Remark Regarding Use of the OSD Menu

- The front buttons are designed without a "designation", Pos. 1-4.
  - All required adjustments are made using the front buttons.
  - The push-buttons are blocked when shipped (new system).

    Unlock or lock them as follows:

    The OSD menu must not be active while the buttons are being unlocked.

    The buttons must be pressed about 1/2 sec. apart.

    Press the SET button (4) 1x.

    Press the Up button (2) 3x.

    The OSD menu can **then** be selected using the Menu button.
  - The OSD menu can also be started without an input signal.
- Basic Functions of the Front Buttons:
  - Menu button (1)

    Opening of the OSD menu.

    Skip to the next line (from top to bottom).
  - Up (2)

    If slider control => select higher selection point => Enter.
  - Down (3)

    If slider control => lower
  - Set (4)

    Always one menu level higher
- Mode display:
  - Green => switched on
  - Yellow => energy saving mode
  - Blinking yellow => energy saving mode, digital only.
  - Slowly blinking yellow => switched off, power switch on.

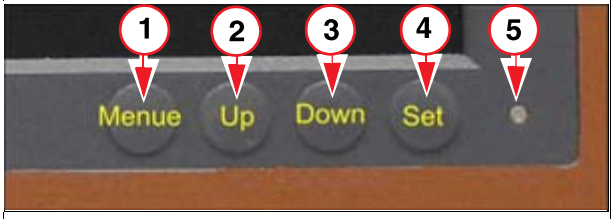


Fig. 3: DSB 1905-DC front buttons

Pos. 1	Menu button, number 1
Pos. 2	Up button, number 2
Pos. 3	Down button, number 3
Pos. 4	Set button, number 4
Pos. 5	Power LED

OSD Menu

Tab. 4 Button functions in the OSD menu

Button(s)	Action
Menu	Selection of the OSD / menu item
up (+)	Open the menu item, a sub-menu may be recognized by the fact that the menu title is highlighted dark. Set the value up or to the right. Input selection (analog <=> digital).
down (-)	Set the value down or to the left.
Set	Close the menu item (press one level higher 1x).

Tab. 5 Blocking/Unblocking the OSD Menu

Function	Action
OSD Menu block or enable	Press Set (4) 1x + Up (2) 3x. The OSD may not be opened to block or release the OSD! When opened, first exit the OSD using "Undo". If the OSD is blocked, only the input signal can be switched with the Up and Down buttons.
Select Service Level 2.	To get to the Service Level 2 menu, the following procedure is necessary: • Select the OSD menu (1). • Select Service Level 2 with the Menu button (1). • Open with: Press the Up button (2) 1x and the Down button (3) 2x to open the Service Level 2 menu or Hold button 3 depressed until the Service Level 2 menu opens. In service level 2, expanded adjustments can be performed.
Adjustment values Save	Press the Set button (4) as often as required until the "Quit OSD" menu item appears. Any changes made are accepted with "Accept changes". The "new" settings are rejected with "Reject changes". Selection is made with the "Menu" button (1). Select the current function using the "Up" button (2).

Tab. 6 OSD Menu

Menu	Brightness / Contrast	Brightness	For adjustment, see (AX System-related Adjustments / p. 32).
		Contrast	For adjustment, see (AX System-related Adjustments / p. 32).
		Backlight	For adjustment, see (AX System-related Adjustments / p. 32).
		RGB relationship	Selection => 1
		Black level	Brightness “not used“
			Contrast “not used“
	Position / Zoom	H-Position	For adjustment, see
		V-Position	For adjustment, see
		Zoom	Selection => Fill Screen
	Source	Source selection	Not needed; selection is automatic
	Auto functions (can only be selected when controlled via the VGA D-Sub).	Auto Brightness Contrast	Use only if the monitor is completely incorrectly adjusted. In conclusion, the adjustment must be performed per (AX System-related Adjustments / p. 32)!
		Auto Position Phase Frequency	For adjustment, see (AX System-related Adjustments / p. 32).

	Language	German/English	Selection => English
	Others	Frequency / Phase	Active only if analog is controlled. For adjustment, see (AX System-related Adjustments / p. 32).
		Sharpness	Active only if the FBAS and/or the S-Video input is used. It can also be selected when DVI is active, but has no effect.
		OSD Settings	If required, the position and the "transparency" of the OSD menu can be set here.
		ALS/DPMS Settings	Configuration is system-dependent, the status when shipped is deactivated.
		Status	Status display of the monitor (e.g. temp., operating hours.....)
	Service level 2 For selection see (General Remark Regarding Use of the OSD Menu / p. 11)	Calibration	Factory defaults.
		User settings	Factory defaults! The "Reset User settings" in this screen can be used to return to the factory defaults. In this case, all settings (B/KC/Phase/Frequency) must be repeated!
		Test and Reset	“Reset to factory defaults” **may not be used!** If this option is selected, the original parameters are loaded.
		Tolerance	The configuration is application-specific and effective "only" with analog control.
		Others	Factory defaults. Only if required, the H image size can be adjusted under "**H Scaler clip**".

Repair / Troubleshooting

In a malfunction situation, the display is only completely replaced.

NOTE	**“Only” the display is available as a replacement part, no boards, etc.** **For replacement part numbers, see the SPC (Spare Parts Catalogue).**

To adapt to the particular system, see (AX System-related Adjustments / p. 32).

NOTE	**Every defective monitor must be returned with an exact description of the malfunction. Without a description of the malfunction, it is virtually impossible to find sporadic and/or temperature-related effects or even system-related causes.**

Test Equipment and Aids

- All required settings must be performed using the push buttons on the front of the unit.
- With analog monitor control (only when using MMV), an additional test pattern is required for the Phase / Frequency adjustment:

  This can be downloaded to diskette from the Med Intranet (if a diskette drive is configured) or burned to CD.

  Recommendation: copy to diskette and to CD because use depends on the system.

  - **For Service => Product Information => AX Systems => Angiography => Recording Systems** => **Software** => **Tools** => **TD00-000.841.08..**
  - Diskette:

    Select "**Display_Images.exe**" => **Save** => to **(A) 31/2 Diskette** (insert the formatted diskette) => **Save** => **open Explorer** => **A:** => double-click on "**Display_Images.exe**" => **Unzip** (A: remains, the files are installed to A:) => **OK** when unzip is completed.
  - CD:

    Select "**Display_Images.exe**" => **Save** => to **C: \ temp** => **open Explorer** => **C: \ temp** => double-click on "**Display_Images.exe**" => select **Browse** => select **C:\ temp** => **Unzip** => **OK**; when unzip is completed => **close the WinZip Self-Extractor window** (X) => burn the **3 Files** (SW_Image.bmp / Moiree.bmp / smpte.bmp) to **CD**.
  - The test patterns may not be installed on the customer PCs.

    The particular required test pattern is started from the diskette / CD.
- SMFit measurement instrument for luminous density measurement.

  To order, see the Spare Parts Catalogue.

  Operation:

- After switching it on, self-adjustment takes place.

  During this time, the measurement instrument must be placed on a mat as shown on the right, so that the measurement input is darkened!

Fig. 4: SMFit Spot Luminance Meter 3

- Self-adjustment:

  While the display is - 0 -, see illustration, the measurement instrument must be on a mat (darkening of the measurement input)!

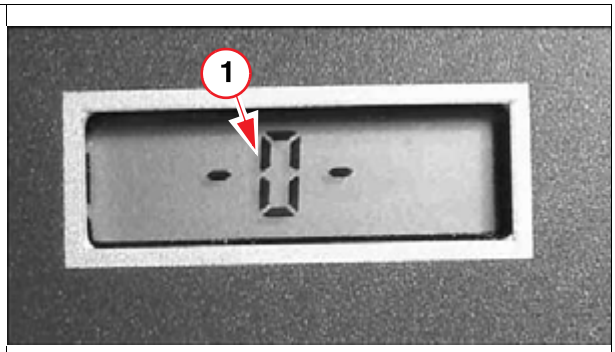


Fig. 5: SMFit Spot Luminance Meter 2

Pos. 1 Self-adjustment running

- Switch on by pressing the On/Off button, see Pos. 1.
- When the self-adjustment is finished, a measurement value and the mode, see Pos. 3, are displayed.
- The measurement instrument must be set to direct measurement (mode "D") for the monitor adjustment.

  The mode, see Pos. 3, is set by briefly pressing the On/Off switch, see Pos. 1.

  A = Remote measurement (DIN)

  D = Direct measurement (adjustment),
- The current measured value can be saved by pressing the "run stop" button, see Pos. 2 (e.g. so that it can be read more easily). By pressing the button again, there is a return to the current measurement.

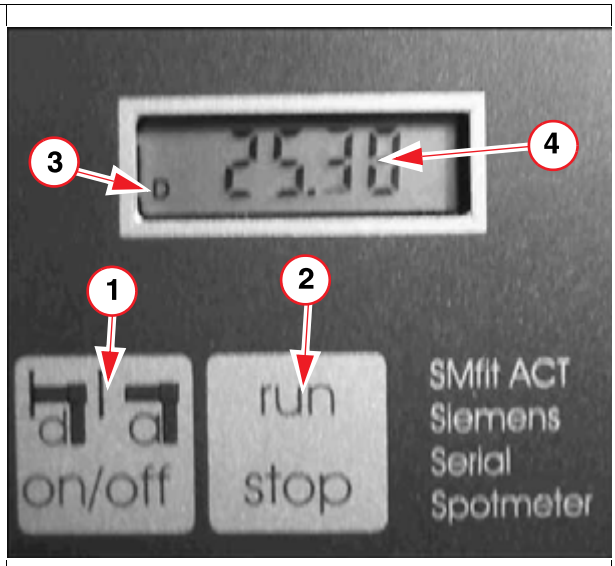


Fig. 6: SMFit Spot Luminance Meter 1

Pos. 1 On/Off switch <=> toggle switch

Pos. 2 Switch to hold measurement value

Pos. 3 Mode indicator

Pos. 4 Measurement value

Troubleshooting

- **General:**

  Every defective TFT monitor can only be replaced completely.

  The replacement monitor is always shipped without a base; in other words, if used on the table, the existing base must be used again.

  Fuses are not replaced; if a fuse is defective, the monitor must be replaced. A fuse responds only if there is an error (in the monitor); because of this, replacing a fuse is not reasonable.

- **Troubleshooting:**

Malfunction	Possible Cause	Remedy
TFT monitor displays no image, LED is off.	Power cable is not plugged in or no line voltage or the monitor is defective.	If the power connector is plugged in and there is line voltage, the monitor must be replaced.
TFT monitor displays no image, power LED is on.	No video/synchronous signal (cable or video source). or Inputs incorrectly plugged in, with a new installation. or Monitor	If the video input is "correctly" connected, the video source is providing a signal; the monitor must be replaced.
Unclear image, disturbances in vertical lines.	Frequency and/or phase incorrectly set with analog control. or Disturbances in the video signal. or The monitor is defective.	1. If there is DVI control and correct video source, the monitor must be replaced. 2. With analog control (VGA), see the Frequency / Phase Adjustment in the particular application. (AX System-related Adjustments / p. 32) If the adjustment does not bring an improvement, replace the monitor.
Other malfunctions (sporadic): LED blinks green:	Plug-in connection(s) loose. or The monitor is defective.	1. Make sure that there is not a contact problem with the connections (line power/video). 2. Replace the monitor.

Malfunction	Possible Cause	Remedy
Required contrast no longer reached?	BA signal is too low, with analog control. or The monitor is defective.	1. Only with analog control, the **BA** signal must be at least 0.5V, otherwise “full control” is no longer ensured. 2. With analog and digital control, perform the H/C adjustment in the particular application: (AX System-related Adjustments / p. 32) if this does not result in an improvement. 3. Replace the monitor.
Pixel Defects: Single / multiple pixels are displayed incorrectly.	Panel (Monitor)	1. Make sure that more pixel defects are present than are allowed in the table (Tab. 3 / p. 9). 2. Replace the monitor. List the pixel defects.
If undefined "effects" occur that may possibly be caused by the configurations.	Perform Reset User Settings; then a "readjustment" must be made per (AX System-related Adjustments / p. 32).	Reset: Open the OSD menu (1x4 and 3x2) => select Service Level 2 (1) => Open (1x2 and 2x3) => select User Settings (1) => Open (2) => select Reset User settings (1) => press Up (2) => the Reset is performed.
	Configuration when shipped is "incorrect". This effect is credible only with a "new installation".	Checking the Configuration: AXIOM Luminos dRF/ Artis .. see (Configuration List: / p. 52)

General

NOTE	**DIN V 6868-57 Acceptance Test for Image Display Devices** **(as of 02/2002, required for Germany only):** **If the display is specified as a diagnostic monitor (Category A or B), an Acceptance Test must be performed after replacing the display: The serial number of the monitor and new reference values have to be entered in the Acceptance Certificate.**

NOTE	**In a spare parts situation, only the TFT monitor or base (with the table application) may be ordered as a spare part.**

Note regarding DVI control:

The DSB 1905-DC / DC-MN is generally controlled via the DVI input.

For longer distances (DCS or monitor trolley), for the:

- **Angio application**, a fiber optic cable is used. The fiber optic cable signal is converted to a DVI signal via an adapter at the DVI input.

  The adapter at the DVI input requires a supply voltage. This is provided by the 5 V output of the monitor. When using the fiber optic cable, the adapter has to be connected to the 5V output of the monitor (separate voltage cable).

- **Fluoro application** a network cable is used. The network cable signal is converted to a DVI signal via an adapter at the DVI input.

  The adapter at the DVI input requires a supply voltage. The voltage is provided to the adapter via the DVI input of the monitor. In contrast to the fiber optic control, a separate voltage connection is not required.

Table Application

NOTE	**The illustrations are entitled DSB 1906 .....** **However the procedure for replacement is identical to the DSC1905-DC.**

Note regarding mechanical VESA installation (screw length):

Two different screw lengths are used, see figure.

The monitor will be destroyed if the long screws are used with the monitor base.

- Pos. 1 (short screws)

  May only be used with the monitor base (table application).

  The screws are included in the shipment of the monitor base.

- Pos. 2 (long screws)

  These may only be used with the DCS or monitor trolley.

  In this application the cover is used, see (1/Fig. 12 / p. 24). This is why the longer screws are required.

  Only the screws from the removed monitor may always be used. Depending on the option, different screw lengths can be used.

  A screw that is too long can destroy the monitor!

Fig. 7: DSB 1906, monitor base as delivered

Pos. 1 used for monitor base only

Pos. 2 used for DCS or monitor trolley only

Monitor disassembly:

- Place the display on a mat, see figure, to protect the panel and front frame from damage.
- Extend the base to maximum length.

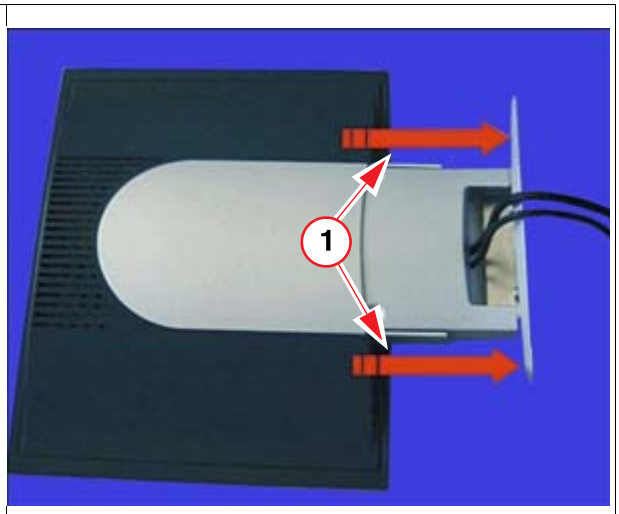


Fig. 8: DSB 1906 desktop (disassembly)
Pos. 1 Raise monitor to max. height

- Remove the back cover (Snap in), see figure.

Fig. 9: DSB 1906-DC / DC-MN
Pos. 1 Remove cover

- Loosen the 4 Torx screws, see figure.

  Note: One rotation is sufficient; the screws remain in the unit.
- Pull the base downward and remove.
- Disconnect the connection cable from the display.
- Remove the strain relief from the power cable.

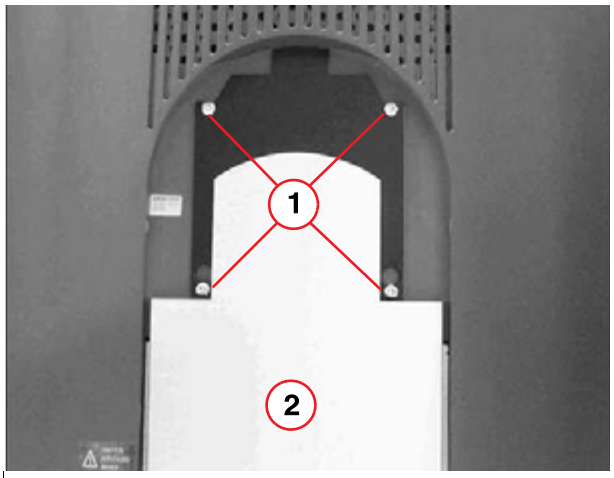


Fig. 10: DSB 1906 desktop disassembly 3

Pos. 1 4 mounting bolts

Pos. 2 Monitor base

- The cables remain in the base because the base will be reused.

  If another base has to be connected, remove the cable from the base as shown in the figure.

Fig. 11: DSB 1906 desktop (disassembly 4)

Pos. 1 Cable duct inside monitor base

Installing the replacement unit:

- The replacement unit is always delivered with a cover, see Pos. 1.

  This cover has to be removed to use the monitor base.
- Remove the covers from the electrical connectors, see Pos. 2.

Fig. 12: DSB 1906-DC / DC-MN

Pos. 1 Cover (for DCS or monitor trolley only)

Pos. 2 Cover (connector)

- Remove the "large" snap-in cover.

  It will not be required when using the base.

Fig. 13: DSB 1906-DC / DC-MN

Pos. 1 Remove cover for monitor base

- Reconnect the cables.
- IMPORTANT:

  Secure the power cable with the strain relief, see Pos. 1.

  The cable tie is included in the holder, see Pos. 1.

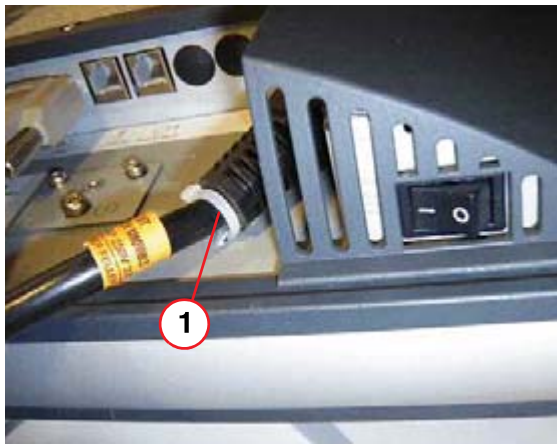


Fig. 14: DSB 1906 power cable
Pos. 1 Strain relief

IMPORTANT:

The screws delivered with the monitor may not be used; instead, use the "old" screws to secure at the base, see (General / p. 20).

- Re-install the base in reverse order.
- Re-insert the back panel (snap in, see figure).

Fig. 15: DSB 1906 desktop (disassembly 2)
Pos. 1 Close cover

Perform the adjustment, see (AX System-related Adjustments / p. 32).

Use in the DCS

NOTE

The replacement monitor is connected in the same manner as the defective monitor that is being replaced.

IMPORTANT: Depending on the application, different spacer adapters (monitor <=> DSC) can be used: If replaced, those used previously, including the screws, absolutely must be used again. If there is a change, the monitor can be destroyed if the mounting screws are too long!

NOTE

The illustrations are sometimes entitled DSB 1906 .....

However the procedure for replacement is identical to the DSC1905-DC.

- Loosen (but do not remove) the two screws at the cover, see Pos. 2 in the figure.
- Pull the screws "out" and remove the cover panel.

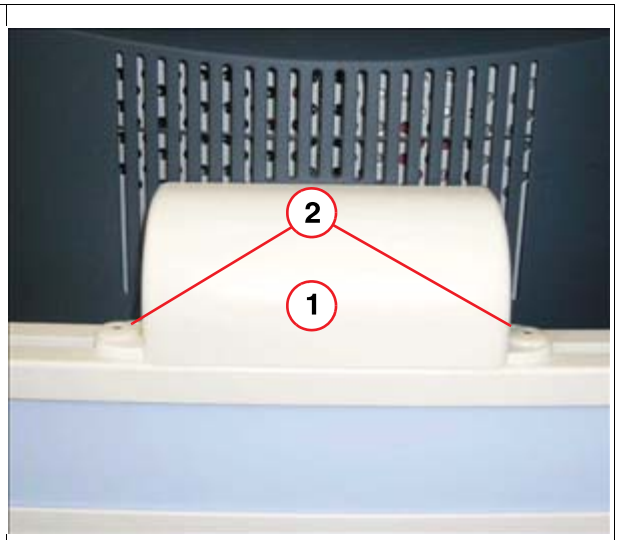


Fig. 16: DSB 1906-DC /DC-MN (DCS1)

Pos. 1 Cover

Pos. 2 2 screws (securing cover)

- Open the cover for the electrical connectors and disconnect all connectors, see Pos. 1.
- CAUTION, the monitor will tilt forward!!

  Remove the 4 screws on the VESA adapter (connection from the monitor to the DCS).
- Pull the monitor forward and out of the DCS.
- Install the replacement motor in the reverse order.

- Installation with fiber optic cable (e.g. Artis VC11 xx or higher), see to the right.

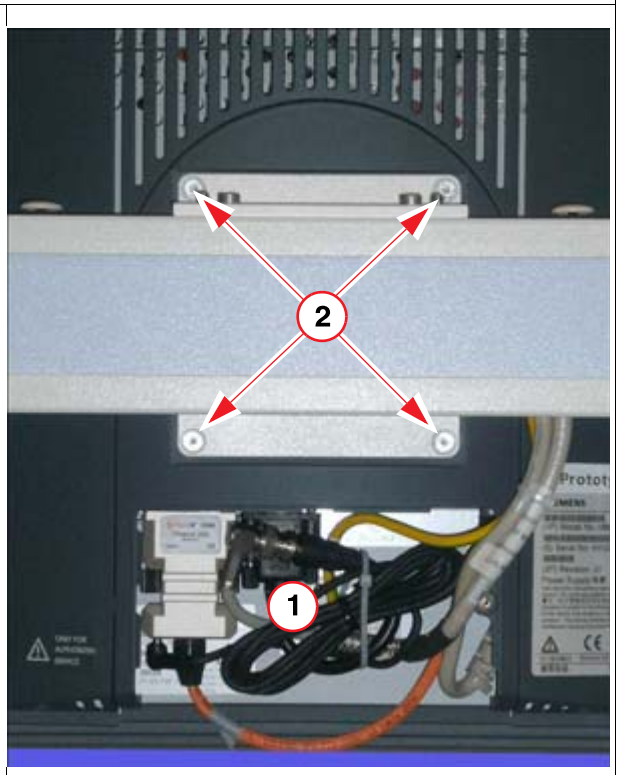


Fig. 17: DSB 1906-DC / DC-MN (DCS2)

Pos. 1	Electrical connections
Pos. 2	4 screws (Vesa adapter on DCS)

- For control using the Cat cable, the adapter (network cable to DVI) is provided with a "contact rubber", see Pos. 3.

  This contact ensures safe shielding for the adapter housing.

  Ensure that the contact is secure, see Pos. 3.

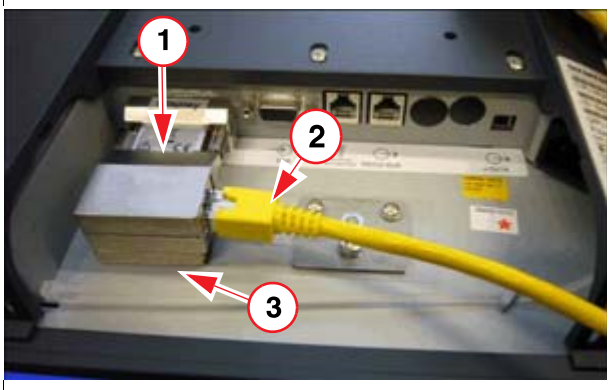


Fig. 18: DSB 1906-DC / DC-MN (video connection)

Pos. 1	Adapter (network cable to DVI)
Pos. 2	Network cable
Pos. 3	Contact rubber (adapter housing to monitor ground)

- IMPORTANT:

  The power cable has to be secured again, see Pos. 1.

  The cable tie required is in the replacement unit, at the mounting plate, see Pos. 1.
- The monitor has to be adjusted depending on the application, see (AX System-related Adjustments / p. 32).

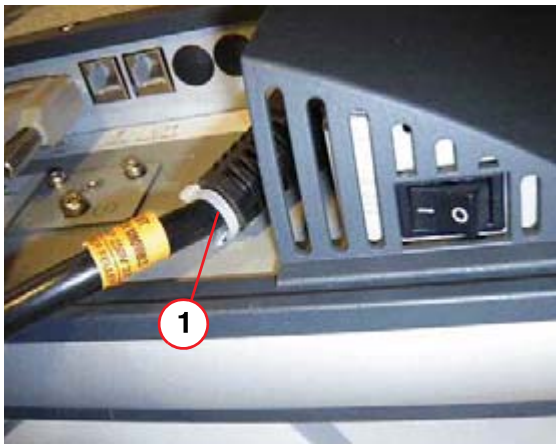


Fig. 19: DSB 1906 power cable

Pos. 1 Strain relief

Use on monitor trolley

NOTE

The illustrations are entitled DSB 1906 .....

However the procedure for replacement is identical to the DSC1905-DC.

- IMPORTANT: the monitor tilts forward.

  Loosen the 4 screws, see Pos. 1.
- Position the monitor on the trolley toward the front (use a mat to prevent damage).
- Open the cover for the electrical connectors and disconnect all connectors, see Pos. 2.

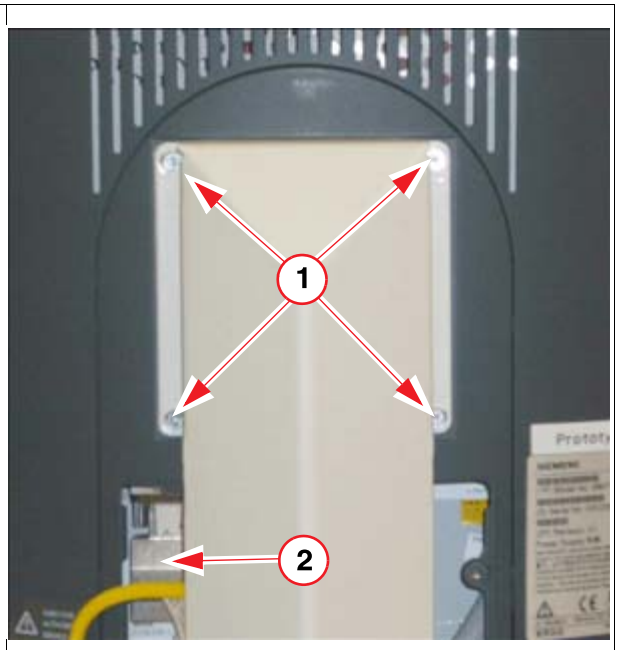


Fig. 20: DSB 1906-DC / DC-MN (monitor trolley)

Pos. 1 4 screws (Vesa adapter for trolley base)

Pos. 2 Electrical connections

- Install the replacement motor in the reverse order.
- IMPORTANT:

  The power cable has to be secured again, see Pos. 1.

  The cable tie required is in the replacement unit, at the mounting plate, see Pos. 1.

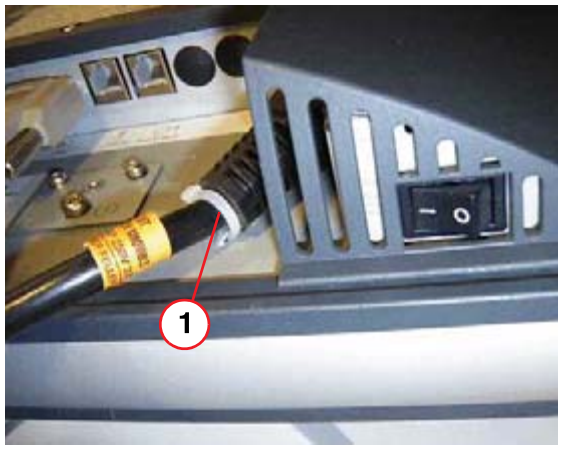


Fig. 21: DSB 1906 power cable

Pos. 1 Strain relief

Control with a CAT cable:

- The adapter (network cable to DVI) is provided with a "contact rubber", see Pos. 3.

  This contact ensures safe shielding for the adapter housing.

  Ensure that the contact is secure, see Pos. 3.
- Attach the monitor to the trolley base, see (1/Fig. 20 / p. 30).
- The monitor has to be adjusted depending on the application, see (AX System-related Adjustments / p. 32).

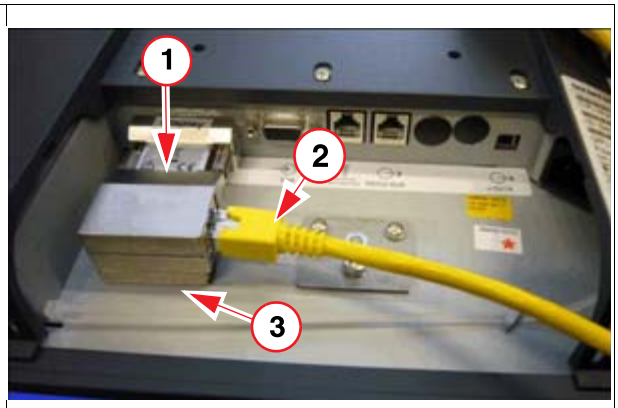


Fig. 22: DSB 1906-DC / DC-MN (video connection)

Pos. 1	Adapter (network cable to DVI)
Pos. 2	Network cable
Pos. 3	Contact rubber (adapter housing to monitor ground)

General Information

General information about adjustment / operation

- The TFT monitor must be switched on for at least 20 minutes before making the adjustments.
- All adjustments must be made at the original installation location
- All adjustments are made in the "OSD" menu (OSD => on screen display). For using the OSD menu, see (General Remark Regarding Use of the OSD Menu / p. 11)
- Usually, "only" the listed adjustments have to be performed. However, if needed, all "other" adjustments can also be performed in the OSD.
- IMPORTANT: **Never** perform the "Factory reset" function!

  The factory settings are also reset by this reset.
- The adjustment is made with the SMFit measuring instrument.

  When performing the measurement, make sure that the measuring sensor does not exert any pressure on the panel surface. Otherwise, panel damage cannot be ruled out!
- If used in systems with the Syngo user interface, make sure that the "window values" are fully opened during the adjustment.

Axis ....

General

General Remark Regarding Use of the OSD Menu:

- For the operating keys, see the illustration; numbering of the keys (1-4) occurs again in the adjustment.
- There is always a switch to a higher level / back when the Set button (4) is pressed.
- Enable/block the OSD menu:

  No OSD display may be visible, then press the following key combination: 1x Set (4) and 3x Up (2), with a pause between of approx. 1/2 sec.

  Open the OSD menu with Menu (1).
- For general operation, enabling / blocking, etc., see

  (General Remark Regarding Use of the OSD Menu / p. 11).

Fig. 23: DSC 19 ..... front buttons

Pos. 1	Menu button (Number 1)
Pos. 2	UP button (Number 2)
Pos. 3	Down button (Number 3)
Pos. 4	Set button (Number 4)

Selecting the Test Pattern

- Select the test patterns under:

  Patient => **Browser** => **Service, Patient**.

- If the service, patient are not present, it can be reinstalled (see illustration on the right):

  Options => **Load Test Image** => when downloaded (see Pos. 2), a refresh must be performed in the Browser.

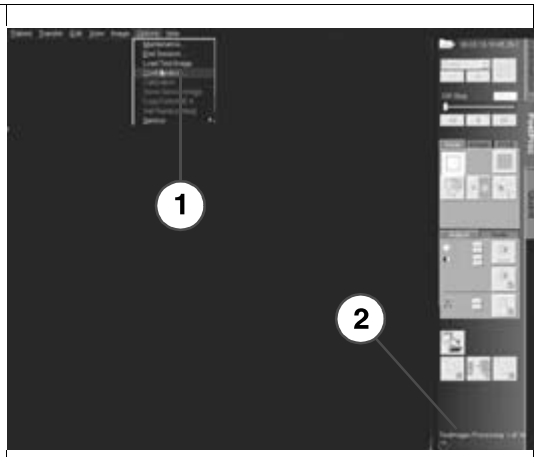


Fig. 24: AXIOM Artis, load test images

Pos. 1	Load Test Image
Pos. 2	Processing

Brightness/Contrast

Selecting the Test Pattern

The LCD test pattern (2% field) is used for the brightness / contrast adjustment, see Pos. 3.

It is opened with a double-click.

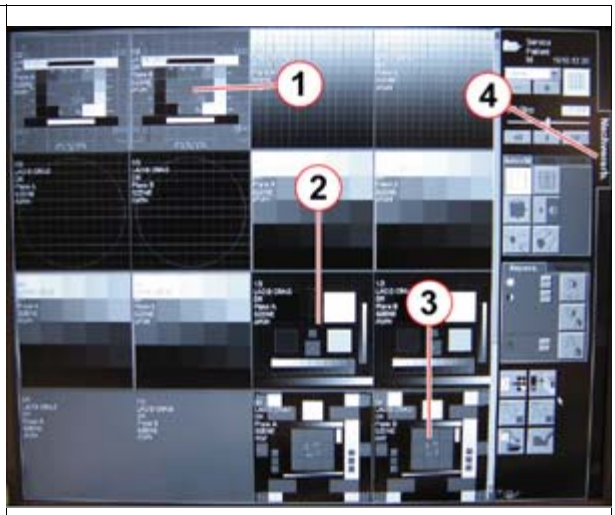


Fig. 25: Service patient

Pos. 1	SMPTE test pattern
Pos. 2	B / C test pattern
Pos. 3	LCD test pattern (2% field)
Pos. 4	Postprocessing tab card

Brightness / Contrast Adjustment

NOTE

Only (!) the backlight controller can be adjusted, see the following adjustment!

Due to the digital control (and only there), all other settings are performed in the factory and may not be changed! Otherwise the "gray steps" are lost if the brightness or contrast is changed (i.e., image information is lost).

B / C Adjustment

1. SMFit measurement instrument: Switching on and Configuration, see (Test Equipment and Aids / p. 16).
2. Window value check, the window must be opened completely. FM 2048 / FB 4094.
3. The mouse pointer may not be inside the measurement field during the measurement!
4. Adjustment is performed in the OSD menu.

5. Adjustment:

1. Zoom the LCD test pattern (press the Zoom/Pan button) and the drag the 100% white field (see Pos. 3) into the center of the image.
2. Adjustment is performed in the OSD menu. Open with Menu (1).
3. Select Brightness / Contrast with Menu (1).
4. The Brightness and Contrast sliders stay on "50".
5. Select Backlight with Menu (1).
6. Set 137, +8/-7 cd/m^2 with Up (3) and Down (3) in the 100% white field.

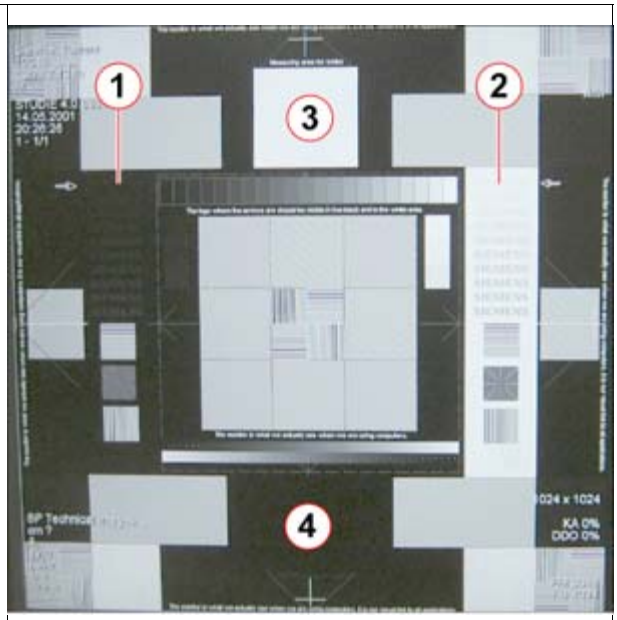


Fig. 26: LCD test pattern (2% field)

Pos. 1	2% field SIEMENS logo (white letters on black)
Pos. 2	98% field SIEMENS logo (black letters on white)
Pos. 3	100% white field
Pos. 4	0% white field (black field)

6. Check the image quality:

1. Select Zoom (display the image fully).

2. The last light "SIEMENS" logotype must just still be visible in the dark field (2% step), see the illustration (Pos. 1).

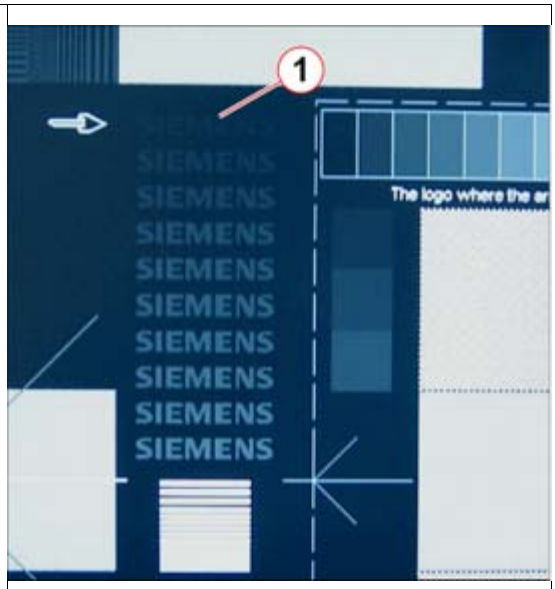


Fig. 27: LCD test pattern, 2% field
Pos. 1 2% field (white letters on black background)

3. The last dark"SIEMENS" logotype must just still be visible in the light field (98% field), see the illustration (Pos. 1).

4. The lettering must be visible; if not, the check the adjustment again.

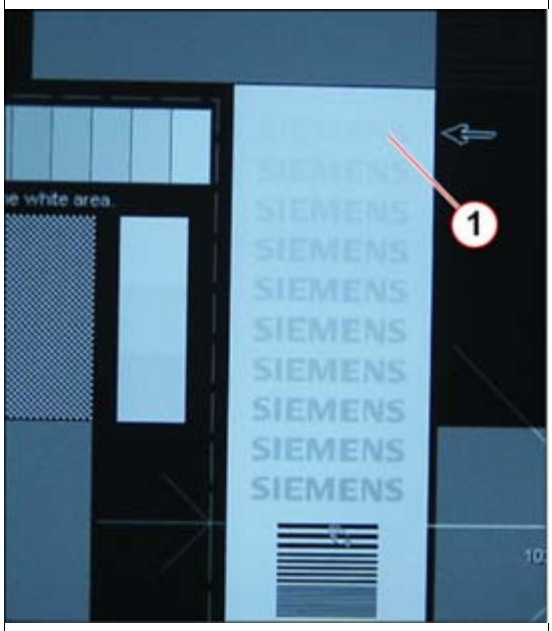


Fig. 28: LCD test pattern, 98% field
Pos. 1 98% field (black letters on white background)

7. **The control keys must be locked [1 x Set (4) and 1 x Up (2)**!
8. The adjustment is finished.

Multi-modality Viewing

Important Information for all Applications

NOTE

Absolutely read:

- **Various video sources can displayed on a monitor via the MMV. Selection of the particular video source is made using the "Remote control keypad" on the MMV or using the MMV tab card for the ECC.**
- **If the same video norms are used for different applications, only the "primary application" can be adjusted; the check of the video norm is described below.**
- **IMPORTANT:**

  The backlight adjustment generally can be made only once for all applications.

  This means that the backlight (max. brightness) adjustment is made in the "primary application" and all "additional" applications are operated with the backlight that results. All other values (position / black value, ...) can be adjusted according to the norm.

NOTE

General Information regarding Adjustment

- **The measurement is performed using the SMfit test meter. Here, the influence of the ambient light must be excluded by covering the area around the measuring probe.**

  For operation of the SMFit test meter, see (Test Equipment and Aids / p. 16).

  When making the measurement, make sure that the measuring sensor does not exert any pressure on the panel surface; this can cause the panel to be damaged or to fail.
- **Prior to beginning the adjustment, the TFT monitor must be switched on for approx. 20 min.**

Select the video source.

The video signal for the particular application must be displayed for adjustment or checking in the monitor.

Selection of the video source is made using the "Remote control keypad" or the Multi-modality tab card for the ECC, see the illustration.

Fig. 29: Remote control keypad

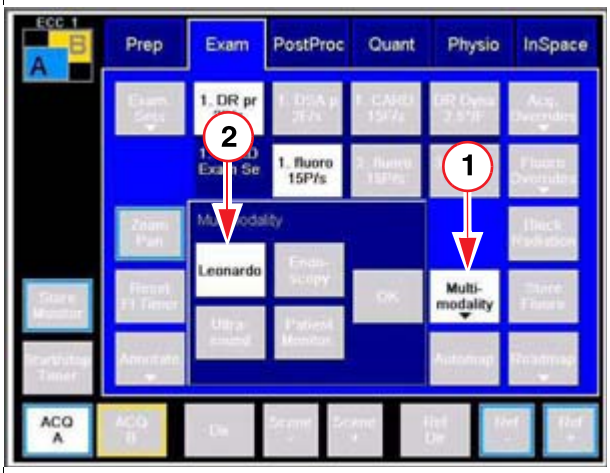


Fig. 30: MMV_tab card

Pos. 1 MMV selection

Pos. 2 Leonardo selection (example)

General Remarks regarding the OSD Menu

Remark Regarding Use of the OSD menu (on-screen display):

- For the operating keys, see the illustration; numbering of the keys (1-4) occurs again in the adjustment.
- There is always a switch to a higher level / back when the Set button (4) is pressed.
- Enable/block the OSD menu:

  No OSD display may be visible, then press the following key combination: 1x Set (4) and 3x Up (2), with a pause between of approx. 1/2 sec.

  Open the OSD menu with Menu (1).
- For general operation, enabling / blocking, etc., see

  (General Remark Regarding Use of the OSD Menu / p. 11).

Fig. 31: DSC 19 ..... front buttons

Pos. 1 Menu button (Number 1)
Pos. 2 UP button (Number 2)
Pos. 3 Down button (Number 3)
Pos. 4 Set button (Number 4)

Video Norm / Use and Control

Tab. 7 Video Norm / Use

The video norm of the currently applied video source can be checked as follows in the OSD menu:

Open OSD menu (1) => select Others (1) => Open (2) => select Status (1) => open (2)

If the data between the different applications for

Resolution H and V (illustration, Pos.1) and

Frequency (illustration, Pos. 2, Vertical only)

are different (one value is sufficient), each of the norms for position, phase/frequency/brightness can be adjusted!

If the values are the same (Pos. 1, 2), only the "primary application" can be adjusted! All other applications can only be checked as to whether everything is visible.

The backlight can **always** be adjusted only for the “primary application”; the other applications may not be adjusted for backlight. However, if so, the "primary application" also changes.

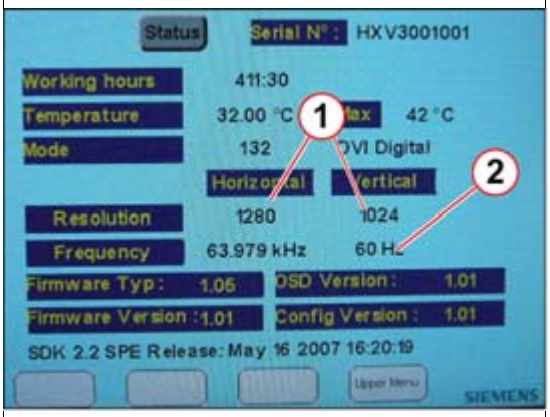


Fig. 32: DSB 1905-DC, OSD resolution

Pos. 1 Resolution => H and V
Pos. 2 Frequency => V only

Auto Adjust

Open the **OSD menu** (1) => select **Auto functions** (1) => Open (2) configure **Auto Brightness Contrast** (1) => to“**Off**” (2) (green dot corresponds to selected) =>

set **Auto Position Phase Frequency** (1) => to “**On**” (2) => select “**Execute select auto function**” (1) => press the **UP** (2) button (Start Auto adjustment)

Problems after Auto Adjustment:

- Resolution:

  If the high-resolution line groups were not displayed without problem, the phase / frequency adjustment can also be performed manually as described below.

- Geometry:

  If the geometry (e.g. H position) is not correctly displayed, the position can be adjusted manually:

  OSD menu (1) => select Size/Position (1) => Open (2) => adjust the H / V position.

Configuration

Select the **OSD** menu (1) => select **Service level 2** (1) => **Open** (hold 3 depressed until Service Level 2 is opened) => select **LUT** (1) => **Open** (2) => select **Select display function** (1) => set to “**5 ”** with **Up** (2).

Leonardo / X - Leonardo / syngo X Workplace / Leonardo MMW / syngo MM Workplace

Switch the Leonardo ..... application (if present) to the monitor.

Reset

- Reset the user settings (reset to "values when shipped"):
  - Open **OSD menu** (1)=> select **Service Level 2** (1) => **Open** (hold 3 depressed until Service Level 2 is opened) => **User settings (1) => Open (2)=> Reset user settings (1) => perform the reset with the Up button (2).**

Frequency / Phase Adjustment

NOTE	**With this adjustment, it is ensured that the picture is correct for the display mask.** **Incorrect adjustment is manifested as an out-of-focus picture.**

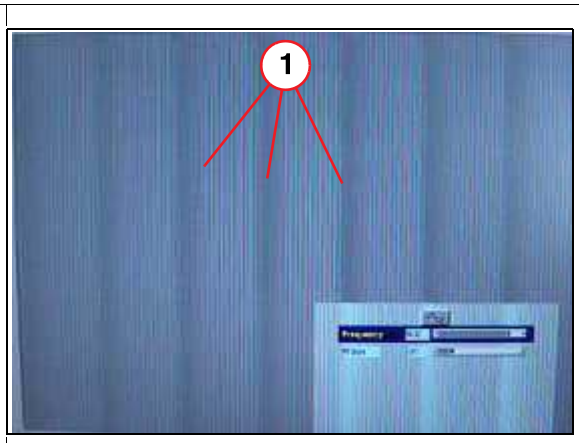
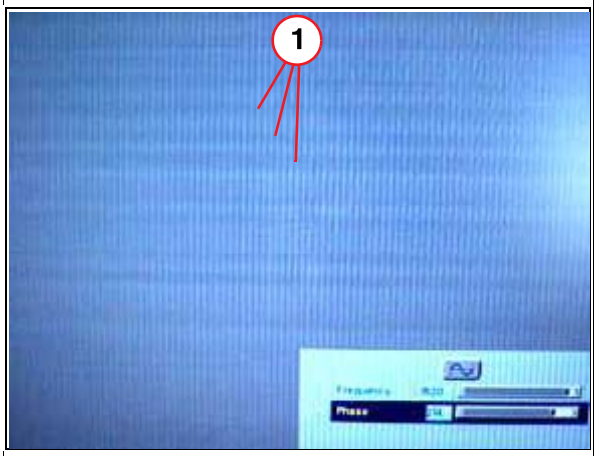
NOTE

The required test patterns must first be downloaded from the Intranet to CD; they are not part of the system.

See also (Test Equipment and Aids / p. 16).

- Select the test pattern:
  - Insert the CD into the drive (CD or DVD).
  - Press the Windows key (keyboard) => Programs => Accessories => open Paint.
  - In Paint:
    Open => File => Open => DVD drive (or drive with CD) => Moiree.bmp.
  - Maximize Paint, use the mouse to click on the square at the top right.
  - Open the image all the way (must!). - Press the "Ctrl and F" keys at the same time

Tab. 8 Frequency / Phase Adjustment

• Open the **OSD menu** (1) => Others (1) => Open (2) => Frequency/Phase (1) => Open (2) => Frequency (1) • Adjust the frequency slider (2 + 3) so that the image contents fill the entire panel screen and no image contents are cut off. If adjustment is correct, no vertical lines are visible, see the illustration. **IMPORTANT:** Horizontal disturbance stripes can be present; they are eliminated below!	 *Fig. 33: Frequency adjustment* Pos. 1 Vertical bars
• => select Phase (1) • Adjust the slider for phase (2 and 3) so that no horizontal lines are visible, see the illustration, and a homogeneous image area is visible. If in exceptional cases disturbances cannot be eliminated completely, set to a minimum.	 *Fig. 34: Phase adjustment* Pos. 1 Horizontal bars

- Close Paint.
- Take the CD out of the unit.

Opening a Test Pattern

Select Brightness / Contrast **Test Pattern**:

- **Leonardo** user interface:
  - Select the “**Viewing**” tab card or the "Angio" tab card.
  - **Patient** => **Browser** => **Local Database** => **Service Images** => **Technical Images** =>**Open**.
  - Open the Brightness/Contrast image, see **Pos.1**.
- If the service patient has been deleted, it can be reinstalled as follows:
  - Press the Windows key => select Leonardo => Toolbox => Load Service Images.
  - A DOS window opens, the service patient is installed.
  - Wait until the DOS window closes automatically.
  - Perform a "refresh" in the browser so that the service patient is displayed.

Fig. 35: “Leonardo” technical images
Pos. 1 Brightness / Contrast test pattern

Brightness / Contrast Adjustment

NOTE

The window values for the test pattern must be fully opened for the adjustment!

- **Angio tab card:**
  - **Brightness: 2048**
  - **Contrast: 4094**
- **Viewing tab card:**
  - **W: 4094**
  - **C: 2048**

Open the **OSD menu** (1) => select **Brightness/Contrast (1) => Open (2) => Brightness** (1).

- Select **Brightness** (1) => set to **minimum** (3).
- Select **Contrast** (1) => set to **maximum** (3).
- Select **Backlight** (1).
- No. 1: Using the slider (2 and 3) in the **White field** (see Pos.3), set **137 cd/m2**, +8/-7 cd/m2 (3 + 4).
- Select **Brightness** (1).
- No. 2: Use the slider in the **Black field** (see Pos.2) to set **0.45 cd/m2**, +0.15/-0.1 cd/m2 (3 + 4).
- Select **Contrast** (1).
- Lower the slider for **Contrast** until the **95% field** (Pos.4) is **visible** (3 + 4).
- Repeat adjustments No. 1 and No. 2 until the values are reached.

  The 5% field (Pos. 1) and the 95% field (Pos. 4) must be visible. If needed, adjust the adjustment tolerances.

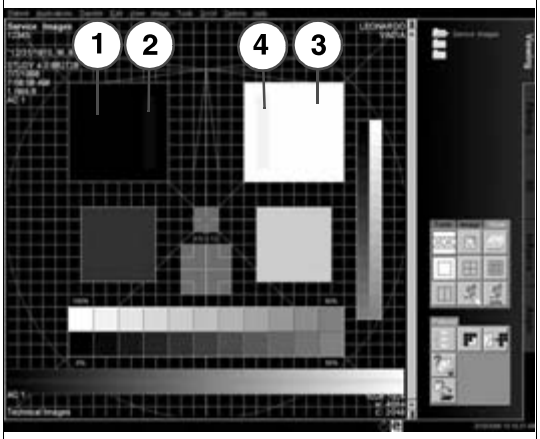


Fig. 36: Leonardo Brightness/Contrast

Pos. 1	Black field (0% white)
Pos. 2	5% field
Pos. 3	White field (100
Pos. 4	95% field

- Save the new adjustment values:

  Press the **Set** key (4) until the "**Undo**" menu appears => select **Accept changes** (1) => save with **Up** (2) (the OSD menu closes).
- **If no other application needs to be adjusted, lock the operating keys (again)**!

  If another application needs to be adjusted, continue with this application.

  - Lock the OSD menu: Press Set (4) 1x and Up (2) 3x.

Siemens SC 600.. / SC700.. (Patient Monitor)

Switch the patient monitor application (if present) to the monitor.

NOTE

The patient monitor has no "test pattern".

Because of this, adjustment of the TFT monitor is more difficult; only an adjustment with the "standard pattern" can be performed.

- Adjust the horizontal image position (left side of image; no image content may be cut off).

  Open the **OSD menu** (1) => select **Position Zoom** (1) => **Open** (2) => select **H Position** (1) => use the slider (2 and 3) to adjust so that no image contents are cut off.

  Go back one step with Set (4).

- Adjust "out-of-focus" / jitter effects.

  Select Others (1) => Open (2) => select Frequency / Phase (1) => Open (2) => select Frequency (1)

  Adjust the image width using Frequency (2 and 3) (right side of image; no image contents may be cut off).

  Select **Phase** (1).

  Adjust the best resolution / jitter-free brightness transitions (edges) using Phase (2 and 3).

  Go back 2 steps with Set (4).

- If needed, the image brightness can be adapted:

  Select Brightness / Contrast (1) => Open (2) => select Brightness (1) => use the slider (2 + 3) to adjust so that the image brightness is correct.

  Note: The backlight setting may not be changed!

Fig. 37: Sample image for SC600...

Completing the Adjustment

- Save the new adjustment values:

  Press the **Set** key (4) until the "**Undo**" menu appears => select **Accept changes** (1) => save with **Up** (2) (the OSD menu closes).

- **If no other application needs to be adjusted, lock the operating keys (again)**!

  If another application needs to be adjusted, continue with this application.

  - Lock the OSD menu: Press Set (4) 1x and Up (2) 3x.

Ultrasound => Terason US Option

The Terason US option is required so that the image of the ultrasound laptop in the control room can be simultaneously shown on the MMV display in the examination room.

Preparation / Selecting the Test Pattern

The display settings are applicable for all Terason US versions:

This display is operated at 1280 x 1024 pixels / 60 Hz.

- Switch the pattern from the ultrasound laptop to the MMV display in the examination room.
  - Selection is made at the ECC or at the MMV remote control keypad.
- Invoke the LCD image on the ultrasound laptop (Fig. 38 / p. 45), the test patterns are under:
  - C:\ ProgramFiles\TestImages
- The LCD image remains selected on the ultrasound laptop.

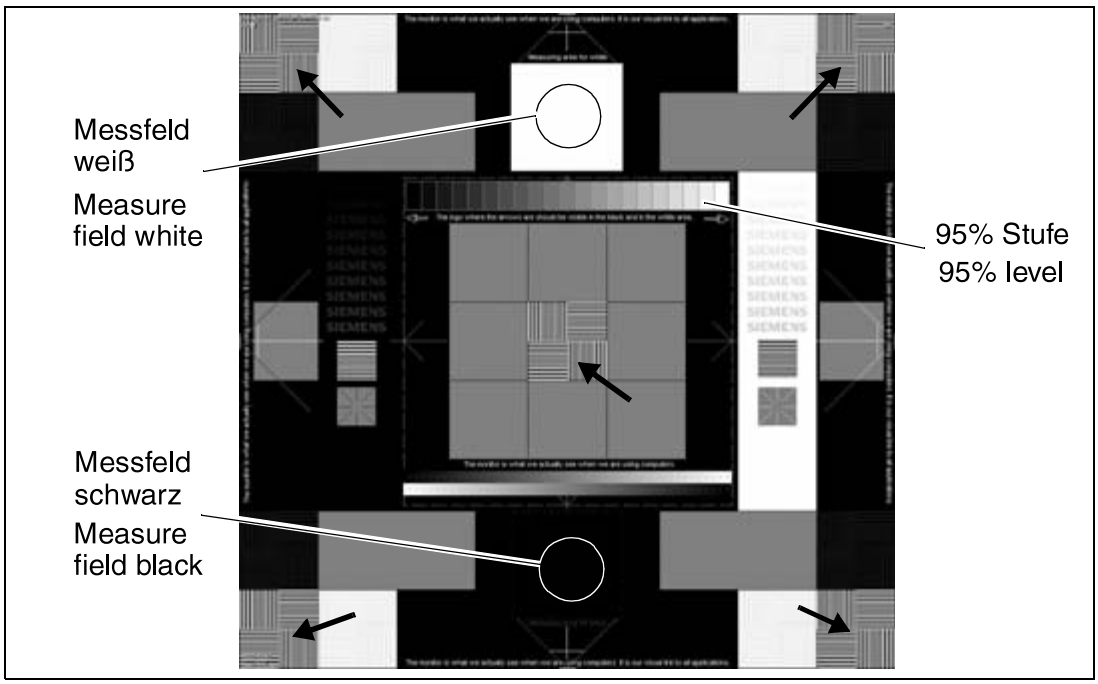


Fig. 38: LCD image

Auto Adjust

Open the **OSD menu** (1) => select **Auto functions** (1) => Open (2) configure **Auto Brightness Contrast** (1) => to“**Off**” (2) (green dot corresponds to selected) =>

set **Auto Position Phase Frequency** (1) => to “**On**” (2) => select “**Execute select auto function**” (1) => press the **UP** button (2) (Start Auto adjustment)

Problems after Auto Adjustment:

- Resolution:

  If the high-resolution line groups were not displayed without problem, the phase / frequency adjustment can also be performed manually as described below.

- Geometry:

  If the geometry (e.g. H position) is not correctly displayed, the position can be adjusted manually:

  OSD menu (1) => select Size/Position (1) => Open (2) => adjust the H / V position.

Configuration

Open the OSD menu (1) => select Service Level 2 (1) => Open (1x2 and 2x3) => select LUT (1) => Open (2) => select Select display function (1) => use Up (2) to set to "**5"**.

Adjusting Phase / Frequency

- **Select Others (1) => Open (2) => select Frequency / Phase (1) => Open (2) => select Frequency (1)**
- Adjust the image width using Frequency (2 and 3) with **Up** (2) and **Down** (3) (right side of image; no image contents may be cut off).
- Select **Phase** with Menu (1).
- Adjust the best resolution / jitter-free brightness transitions (edges) using **Up** (2) and **Down** (3).
- Go back 2 steps with **Set** (4).

Brightness / Contrast Adjustment

- Brightness / Contrast Adjustment:
  - Drag the white area to the center of the screen.
  - Measure the luminous density in the white measuring field.

    The measured value must be 137 cd/m^2, +8/-7 cd/m^2.

    Note: However, the setting may not be changed, or only if this norm is the "primary application", see (Video Norm / Use and Control / p. 39)!
  - Drag the black area to the center of the screen.
  - **Select Brightness / Contrast (1) => Open (2) => select Brightness (1) => adjust the slider (2 and 3) so** that 0.45cd/m^2, +0.15/-0.1 cd/m^2 results in the black measuring field.
  - If the logo is not visible in the white area, the contrast can be adapted as follows:

    select **Contrast** (1) => adjust with the **slider** (2 and 3) so that there is no cut-off in the white area.
  - The SIEMENS logo must be visible in the black and white area in the test image next to the logo "**<= The logo where the arrows are should be visible in the black and the white area =>**.

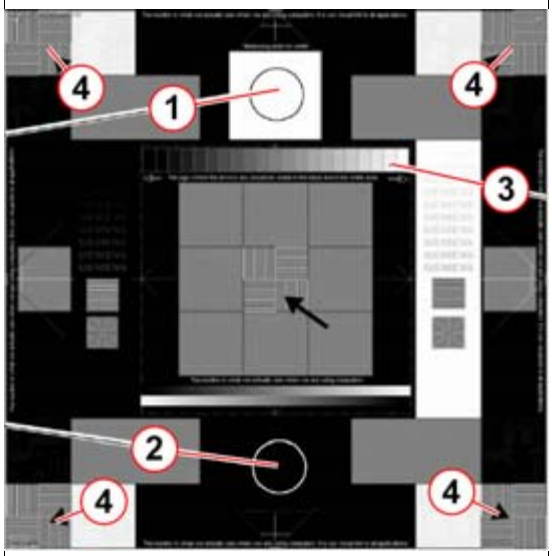


Fig. 39: Ultrasound test pattern

Pos. 1	100% white field
Pos. 2	0% white field (black field)
Pos. 3	95% field
Pos. 4	Resolution fields (5x)

Completing the Adjustment

- Save the new adjustment values:

  Press the **Set** key (4) until the "**Quit OSD**" menu appears => select **Accept changes** (1) => save with **Up** (2) (the OSD menu closes).
- **If no other application needs to be adjusted, lock the operating keys (again)**!

  If another application needs to be adjusted, continue with this application.
  - Lock the OSD menu: Press Set 1x and Up 3x (1 x 4 and 3 x 2) .

Aux (Voice Control)

Switch the Voice Control application (if present) to the monitor.

NOTE

As a rule, the video norm for "Voice Control" is the same as for the "Leonardo" application.

This means that no adjustment may be performed for this application; this would change the Leonardo adjustment.

Only check whether everything is visible!

External PC Signal (Customer PC)

Switch the Customer PC application (if present) to the monitor.

If an additional, external PC signal is processed, make sure that this signal has a different video norm (than our signals).

See also (Video Norm / Use and Control / p. 39).

If this is assured, the monitor adjustment is performed normally; as a default, the Leonardo application, for example, can be used.

The following also applies here:

The backlight cannot/may not be changed; it is adjusted by our application.

The phase / frequency / brightness can be adjusted only if a test pattern from the customer application is available. If this is not the case, only an approximate adjustment using e.g. Word and a page with "mmmmmmmmm" can be used for the phase/frequency adjustment; if possible, the procedure can also be performed using the test pattern on the CD. For this, see the Leonardo application.

Completing the adjustment:

- Save the new adjustment values:

  Press the **Set** key (4) until the "**Undo**" menu appears => select **Accept changes** (1) => save with **Up** (2) (the OSD menu closes).

- **If no other application needs to be adjusted, lock the operating keys**!

  If another application needs to be adjusted, continue with this application.

  - Lock the OSD menu: Press Set (4) 1x and Up (2) 3x.

ICONOS R100 / R200 ND

- Make sure the monitor has been switched on for at least 20 minutes before performing the adjustment.

- For the operating keys, see the illustration; numbering of the keys (1-4) occurs again in the adjustment.
- Pressing the Set button (4) generally switches to one level higher or back.
- Open the OSD menu:

  There must be no OSD display visible; then press the following key combination: Press Set (4) 1x and Up (2) 3x.

  Open the OSD menu with Menu (1).

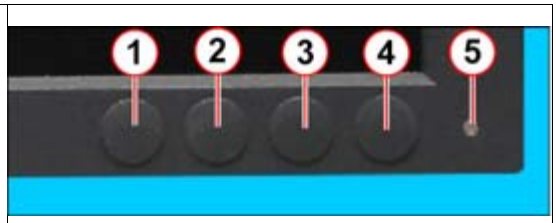


Fig. 40: Front keys DSC 19xx

Pos. 1	Menu
Pos. 2	Up
Pos. 3	Down
Pos. 4	Set
Pos. 5	Power LED

Adjustment / Configuration

NOTE

- **To ensure IQ, the adjustment must be performed in the following sequence.**
- **The Auto adjust / Reset user settings must not be performed with the DIC test image; "only" the normal DIC image may be present.**
- **Any problems with the size / position should not occur after Reset User settings because the "norm" is set.**

1. Select the tolerance.
   - Open the **OSD menu** (1) => select **Service Level 2** (1) => **Open** (hold 3 depressed until Service Level 2 is opened) => select **Tolerance** (1) => **Open** (2) => select **Norm group** (1) => select **Pal RGB** (2) => go back one step with **Set** (4).
2. Reset the user settings (reset to "values when shipped"):
   - Select **User Settings (1) => Open (2) => select Reset User Settings** (1) => perform the reset (1) => with the **Up key** (2).

     Note: When this is done, the image display appears green (not an error).
3. Configuration:
   a) Open the **OSD menu** (1) => select **Service Level 2** (1) => **Open** (hold 3 depressed until Service Level 2 is opened) => select Others **(1) =>** Open **(2) => select** Signal **(1) => select** Monochrome **(2) => go back one step with Set** (4).
   b) Display function:

      Select **LUT** (1) => **Open** (2) => select **Select Display function** (1) => set to **3** with Up (2) (specified comparison for 160 cd/m^2) => go back 2 steps with **Set** (4).
4. **Brightness / Contrast Adjustment**

NOTE

The measurement is made using the SMfit test meter; here, the influence of the ambient brightness must be excluded (by covering the area around the measuring sensor).

When making the measurement, make sure that the measuring sensor does not exert any pressure on the panel surface; this can cause the panel to be damaged or to fail.

NOTE

Contrast:

Detection of the 95% fields in the 100% field (limitation) is adjusted using video gain (contrast).

Backlight:

The 100% field (maximum white) is adjusted using the backlight.

Brightness:

Adjustment of the black area (basic brightness and detection of the 5% field).

Select the black / white text image on the Videomed DIC:

- Videomed DIC

  Set the S2 - 3 / 4 / 5 / 6 switch to the On position.

- Press the S1 push button until the black-and-white test image is displayed on the TFT monitor.

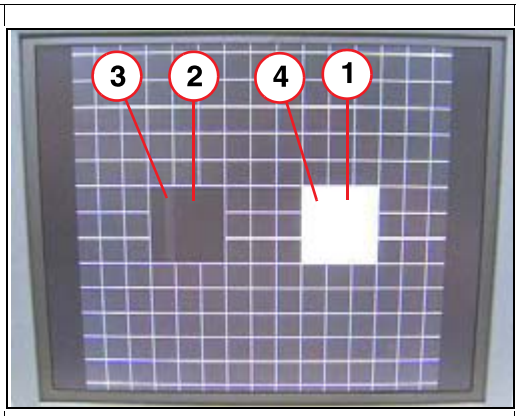


Fig. 41: Videoemd DIC B/W test image

Pos. 1	White field (100% white)
Pos. 2	Black field (0% white)
Pos. 3	5% field
Pos. 4	95% field

c) Select **Brightness / Contrast** (1) => open **=> Brightness** (2) => select (1) with **Down** (3) => set to **minimum** => select **Contrast** (1) => set **Up** (2) to **maximum**.

d) "1" Select **Backlight** (1) => set **160 cd/m^2, $^+$/-10** cd/m^2 in the 100% field.

e) "2" Select **Brightness** (1) => set **0.5 cd/m^2, $^+$/-** 0.2 cd/m^2 in the black field.

f) "3" Select **Contrast** (1) => lower the slider with **Down** (3) until the **95% field is visible**.

g) **"Alternately repeat adjustments d, e and f"** until the specified values are reached.

h) Select **Contrast** (1) =>**double** the setting value with **Up** (2), e.g. if the current value = 30, set to 60). The 95% field is no longer visible.

Note: If the value cannot be doubled (the adjustment value is > 50), the slider for contrast is set to the maximum.

i) Select **Brightness** (1) => set to **0.5 cd/m^2**, $^+$/- 0.2 cd/m^2 in the black field with **Up** (2) and **Down** (3).

j) Save the new adjustment values:

Press the **Set** key (4) until the "**Quit OSD menu**" appears => select **Accept changes** (1) => perform with Up (2).

5. Block the OSD menu by pressing the combination **SET (4)** 1 x and **Up** (2) 3 x.
6. Switch off the test image in the Videomed DIC:

   Set the Videomed DIC S2 - 3 / 4 / 5 / 6 switch to the Off position.

   Press the S1 push-button; there will be a reset and the "normal" image will be displayed again.

NOTE

- **The best possible IQ is ensured by this Brightness/Contrast adjustment.**
- **If the customer complains about "cutoffs" in bright areas, the contrast can be set lower. In this way, cutoffs are minimized.**

  However, in this case, the image is displayed with lowered contrast!

The adjustment is finished.

Appendix

Configuration List:

Configuration when Shipped

OSD Menu	Settings Artis beginning with VC xx or higher	Settings MMV	Settings Sony VCR Recorder	Iconos R100 /200ND Settings
Brightness / Contrast	Digital Control: Brightness = 50; Contrast = 50 (do not change); Backlight, see instructions. Analog Control: Brightness; Contrast; Backlight, see instructions. Color = **2**			
Position / Zoom	Digital Control: H Position / V Position not required. Analog Control: H Position / V Position are set to factory Siemens settings, no adjustment required for "normal cases". Zoom = **Fill to Aspect Ratio.**			
Source	No configuration when shipped; selection is automatic			
Auto functions	No configuration when shipped; auto-adjustment.			
Language	**English**			

OSD Menu		Settings Artis beginning with VC xx or higher	Settings MMV	Settings Sony VCR Recorder	Iconos R100 /200ND Settings
Others =>	Frequency / Phase	Digital Control => No function. Analog Control => See instructions for adjustments.			
	Sharpness	Digital Control => No function. Analog Control => Only functional with deviating 1280 x 1024 timings			
		4		**No display!** Do not change; see the instructions.	**4**
	OSD/LED Settings	Horizontal Position = **Slider at right stop** Vertical Position = **Slider at right stop** Background = **Opaque** LED (brightness of the mode display LED) = **Dimmed**			
	DPMS Settings	DPMS = **On** (green = selected). DPMS Off Mode (Backlight) = **Dimmed** (green = selected).			
	Status	No configuration when shipped. Display of the current temperature, working hours, video mode, firmware.			

<table>
<tr><th colspan="2">OSD Menu</th><th>Settings
Artis beginning with VC xx or higher</th><th>Settings
MMV</th><th>Settings
Sony VCR Recorder</th><th>Iconos R100 /200ND Settings</th></tr>
<tr><td rowspan="5">Service Level 2</td><td>Calibration</td><td colspan="4">Backlight command; Backlight sensor info => display only.
Backlight (regulated) => factory set.
Backlight regulation => On</td></tr>
<tr><td>User settings</td><td colspan="4">No configuration.
• Reset the user settings = reset to settings when shipped.
This requires new adjustment.
• Custom settings number = the currently applied norm is saved under the number “x”.
• Save custom settings = the currently applied norm is saved as the “default norm”. By saving, quick access is ensured when the norm is applied again.
• Reset custom settings = reset of the custom settings.</td></tr>
<tr><td>Test and Reset</td><td colspan="4">• Test Pattern = Off
(when ON an internal test image is displayed).
• Reset to factory defaults = !! Never select this !!
If you make this selection, the original values are reset. If this does occur, the configuration needs to be manually input.
• Restart = Monitor performs a restart.</td></tr>
<tr><td rowspan="2">LUT</td><td colspan="4">LUT Backlight command = Off</td></tr>
<tr><td>Select display function => 4
(factory=4!)</td><td>Select display function => 5
(factory=4!)</td><td>Select display function => 5
(factory=4!)</td><td>Select display function => 3
(factory=4!)</td></tr>
</table>

OSD Menu		Settings Artis beginning with VC xx or higher	Settings MMV	Settings Sony VCR Recorder	Iconos R100 /200ND Settings
Service Level 2	Tolerance	Norm Group **No effect**	Norm Group => **PAL Video**	Norm Group => **VCR**	Norm Group => **PAL RGB**
		Switch loop => **1** Tolerance factor => **1** DVI-D Equalization => **13** DVI-D PLL Bandwidth => **4MHz** Backlight regulation amplifier => **factory set** Emergency mode analog => **Inactive** Correction of “Fill all” timings => **Inactive**			
	Others	Info => **Off**			
		Signal **No effect**	Signal => **RGB**	Signal => **Monochrome** (New shipment RGB!)	Signal => **Monochrome** (New shipment RGB!)
		Serial interface => **On** Serial bus => **disabled** Bus address => **1**			
	Temperature	Temperature Limit => **60C** Temperature Shutdown => **70C**			

Cleaning:

NOTE

- **Remove any water droplets that appear; longer contact can cause the finish to discolor.**
- **If the panel front is dirty, clean with a micro fiber cloth and, if needed, with one of the following listed cleaning agents.**
- **The entire monitor may be disinfected only with the tested disinfectants!**

Active ingredient class	Tested cleaners and disinfectants	Examples
Alcohol	Ethyl alcohol, 96%	Hospiset cloth Microcide liquid
Aldehyde	Melsitt Cidex	Aldasan 2000 Kohsolin Gigasept FF
Chlorine derivate	Terralin	Quartamon Med
Disinfectants	Taski DS5001 (Diverseylever Labs) Morning Mist Surfanios Fraicheur Citron (Anios Labs)	
Guanidine derivates	Lysoformin	
Quaternary compounds	Incidur spray, full strength	
Commercially available dishwashing liquid	Tempo	Fairy Ultra, Pril, Palmolive
Gasoline	Petroleum ether	
Prydine derivates	Spray Activ, full strength	
Water	Tap water Distilled water	

Cleaning agents and disinfectants that are not allowed:

Active ingredient class	Tested cleaners and disinfectants
Peroxide compounds	Perform Dismozon, pure

Replacement for Part No. 28 44 376 (Hitachi Monitor) used with the Sony VCR Recorder

Mechanical Replacement

- To replace the Hitachi monitor, the following "spare parts" are required:
  - 19" color monitor, Part No. 086 83 984
  - Stand base, Part No. 10293001
  - BNC on the D-Sub adapter, Part No. 086 93 942.
  - Power cable (3m, three-prong connector <=> straight connector for the monitor), Part No. 10094162
- Connections:

The existing BNC connector is connected to the D-Sub input via the adapter, see Pos. 1.

The power cable is secured by a cable tie, see Pos. 3.

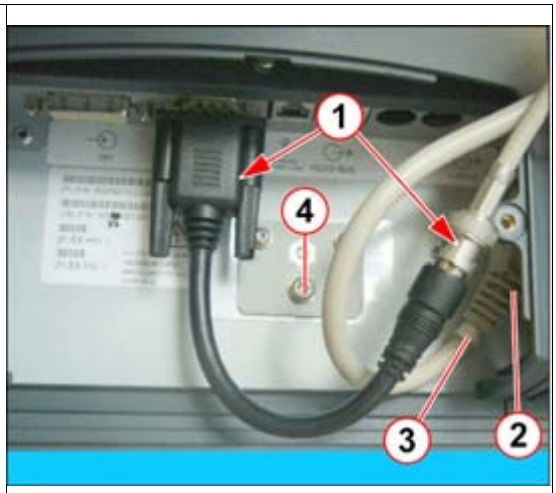


Fig. 42: Replacement for 28 44 376 (Hitachi) => use Sony VCR recorder

Pos. 1	BNC adapter <=> D-Sub
Pos. 2	Power connector
Pos. 3	Power cable strain relief
Pos. 4	Ground connection

Adjustment

AXIOM Artis VCR Mode

- For the operating keys, see the illustration; numbering of the keys (1-4) occurs again in the adjustment.
- There is always a switch to a higher level / back when the Set button (4) is pressed.
- Open the OSD menu:

  No OSD display may be visible, then press the following key combination: Set 1x and Up 3x.

  (1 x 4 and 3 x 2, interval approx. 1/2 sec)

  Open the OSD menu with Menu (1).

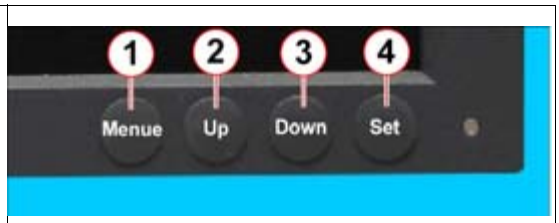


Fig. 43: DSC 19 ..... front buttons

Pos. 1	Menu button (Number 1)
Pos. 2	UP button (Number 2)
Pos. 3	Down button (Number 3)
Pos. 4	Set button (Number 4)

- When it is switched on, the display detects the applied video norm and automatically sets itself to it.
  - New norms that have not yet been set must be set. The next time this norm is used, the display sets the norm again automatically.
  - There is separate set of parameters in the display for each norm. This means that each norm used must be set individually! The backlight setting is the same for all norms.

Reset / Configuration

NOTE

Focus adjustment => DO NOT TOUCH!

The focus (OSD =>Others = Sharpness) may not be changed! If a selection has been made, the reset to factory defaults must be performed under OSD => Service Level 2 => Test and Reset. Then the configuration must be checked/configured manually according to (Configuration when Shipped / p. 52).

- Select the tolerance.
  - Open the **OSD menu** (1) => select **Service Level 2** (1) => Open (1x2 und 2x3) => select **Tolerance** (1) => Open (2) => Select Norm group (1) => select **VCR** (2) => go back one step with Set (4).
- Reset the user settings (reset to "values when shipped"):
  - **Select User Settings (1) => Open (2) => select Reset User Settings** (1) => perform the rest with the Up key (2).

    Note: When this is done, the image display appears green (not an error).
- Configuration:
  - Open the **OSD menu** (1) => select **Service level 2** (1) => Open (1x2 and 2x3) => select **Others** (1) => **Open** (2) **=>** select **Signal** (1) => select **Monochrome** (2).

- Open the **OSD menu** Open (1) => select **Service level 2** (2) => **Open** (1x2 and 2x3) =>
  Select **Calibration** (1) => **Open** (2) => select **Select Display function** (1) => set to **5**(2) => 2x level back (4).

Size / Position

- Image Position:
  - Trigger fluoro and display an LIH image on the DVD-R monitor.

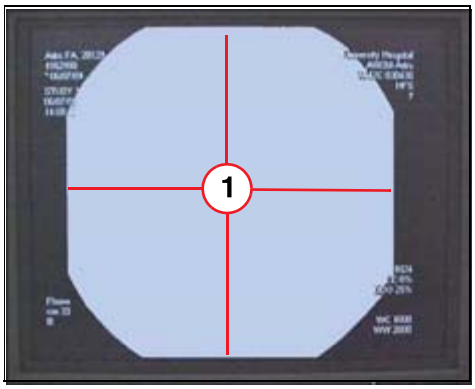


Fig. 44: VCR LIH, test image
Pos. 1 Image size, H - V

- **Select Others (1) => Open (2) => select Service Level 2** (1x2 and 2x3) => select H - Scaler clip (1) => set **H to V at the same amplitude** with Up (2) and Down (3) (H amplitude can be changed), see (1/Fig. 44 / p. 59).
- Go back 2 steps with the Set button (4).

Brightness/Contrast

NOTE

The measurement is made using the SMfit test meter; here, the influence of the ambient brightness must be excluded (by covering the area around the measuring sensor).

When making the measurement, make sure that the measuring sensor does not exert any pressure on the panel surface; this can cause the panel to be damaged or to fail.

- Generating a Test Image
  - Select the current organ program in the Editor (see illustration), not the DSA program!
  - Position the center to "0".

    Position the width to "1".
  - Select "Apply", not Store(!!). In this way, the "old" values are again accepted by changing the program in the Editor.
  - Select "Close Editor".

Fig. 45: Editor
Pos. 1 Selecting the Editor

- Making a Recording
  - Collimate with the collimator, see illustration.
  - Trigger a brief exposure to display the image on the monitor.
- Select Brightness / Contrast (1) => Open (2) => select Contrast (1)
  - Set to the **maximum** with Up (2).
  - Select Backlight (1).
  - Set to **137 cd/m^2**, +8/-7 cd/m^2 in the 100% white field with Up (2) and Down (3).
  - Select Brightness (1).
  - Set to **0.45 cd/m^2**, +0.15/-0.1 cd/m^2 with Up (2) and Down (3) in the black field.
  - Select Contrast (1).
  - Use Down (3) to lower the contrast until the cd/m2 value in the white area (measured with the SMFit meter) drops.

    Again increase the slider again with Up (2) until the previously set value is just reached.
  - Check the brightness value in the black field, adjust it if required.

    If it needs to be "readjusted", the contrast value must be checked again, and if needed, adjusted.
  - Save the new adjustment values:

    Press the **Set** button (4) as often as needed until the "**Quit OSD menu**" appears.

    Select **Accept changes** with Menu (1).

    The OSD is closed with Up (2) and the adjustment values are accepted.

  - Change the organ program at the AXIOM Artis and select it again; when this is done, the Window changes are again set back to their original settings.
  - Make a brief X-ray exposures (also on VCR).

    Playback of the recording from the VCR recorder must be optically the same on the monitor.

Fig. 46: VCR test image

Blocking the OSD Menu again

- Block the OSD main menu again by pressing the combination **SET** (4) 1 x and **Up** (2) 3 x, see (OSD Menu / p. 12).
- The adjustment is finished.

ARCADIS Systems

NOTE

- **The TFT monitor has been switched on for 20 minutes before the beginning the adjustments!**
- **All adjustments must be performed at the "original" installation location (e.g., monitor trolley).**

Control brightness and contrast with SMfit Spotmeter

NOTE

To check a monitor that has already been programmed and adjusted (e.g. when performing maintenance), measure the light density in the 0% and 100% field of the SMPTE test image, and compare to the target values.

In addition, the 5% and 95% fields in the SMPTE test image must be visible.

When replacing the monitor, the programming and adjustment must be performed pursuant to this chapter.

Displaying the SMPT Test Pattern on the Monitor

- Open and log in to the local service on the ARCADIS image system.
  - ➪ The "Service Patient" is visible in the patient browser.

- Open the SMPTE test pattern under "Service Patient".

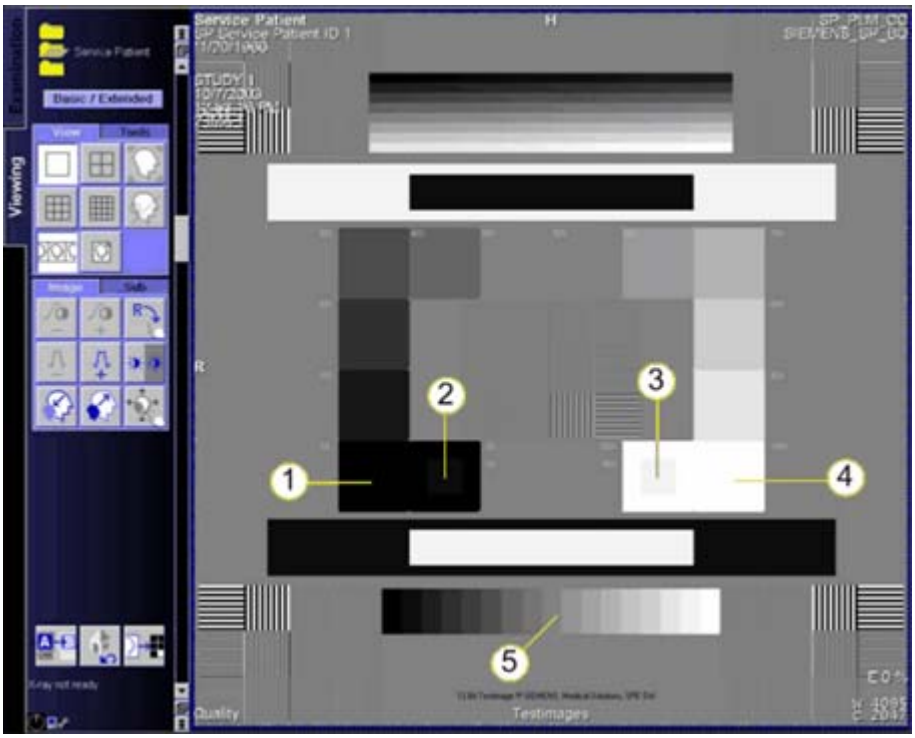


Fig. 47: SMPTE

Pos. 1	0% Field
Pos. 2	5% Field
Pos. 3	95% Field
Pos. 4	100% Field
Pos. 5	Gray levels

Checking Brightness/Contrast with the SMfit Spotmeter

- In the 0% field, (1/Fig. 47 / p. 64) < 1 cd/m^2 must be measurable.
- In the 100% field, (4/Fig. 47 / p. 64) 200, +/-20 cd/m^2 must be measurable.
- The 5% field (2/Fig. 47 / p. 64) and the 95% field (3/Fig. 47 / p. 64) must be visible.
  - ➪ If the values are not reached, an adjustment must be performed.

Replacement

NOTE	**In any malfunction situation, only the complete monitor is replaced.**

- Connect the monitor using the VGA or DVI cable and the power cable (2/Fig. 48 / p. 65).

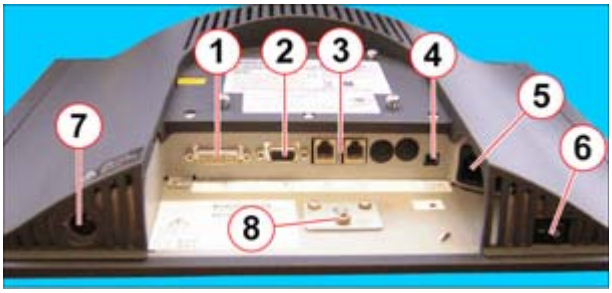


Fig. 48: Connection panel DSB 19..

Pos. 1 DVI-I Input
Pos. 2 VGA Input (D-Sub).
Pos. 3 RS232 (service only)
Pos. 4 5V/1A output
Pos. 5 Power connector
Pos. 6 Power switch
Pos. 7 Used only with SMFit ACT (currently not used on AX / SP systems)
Pos. 8 Ground connection

Programming

NOTE

The monitor is delivered from the factory with the settings for AX systems. The following programming or adjustments must be performed.

NOTE

All programming is performed via the On Screen Display (OSD).

Button functions in the OSD menu

NOTE

The OSD menu can also be selected without video signal.

Normally, the monitor automatically detects the correct signal input DVI digital / DVI analog or VGA.

- For the operating keys, see the illustration; numbering of the keys (1-4) occurs again in the adjustment.
- Pressing the Set button (4) generally switches to one level higher or back.
- Enable/block the OSD menu:

  There must be no OSD display visible; then press the following key combination: 1x Set (4) and 3x Up (2), with a pause between of approx. 1/2 sec.

  Open the OSD menu with Menu (1).
- For general operation, enabling / blocking, etc., see

  (TD00-000.841.24 / General Remark Regarding Use of the OSD Menu).

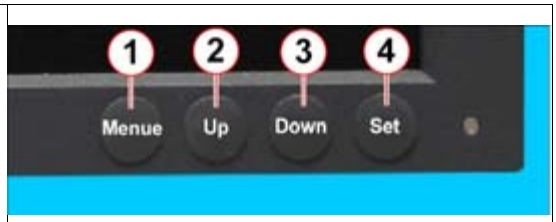


Fig. 49: DSB 19 ... Front buttons

Pos. 1	Menu button (number 1)
Pos. 2	UP button (number 2)
Pos. 3	Down button (number 3)
Pos. 4	Set button (number 4)

- Unlock the OSD menu . See the chapter (General Remark Regarding Use of the OSD Menu / p. 11).

Parameter signal input

NOTE

For an ARCADIS system (Gen2) without "video splitter" options, the "DVI digital" input must be programmed (DVI cable plugged into PC and monitor).

For an ARCADIS system (Gen2) with installed video splitter, the "DVI analog" input must be programmed (DVI cable plugged into monitor, but VGA-DVI adapter plugged into video splitter = analog video signal via DVI cable).

For an ARCADIS system (Gen2) with 15 pin VGA cable connection between PC and monitor, the "VGA" input must be programmed.

- If the ASPIA image signal is not visible with connected TFT display, select the correct input (VGA, DVI digital or DVI analog):
  - ➪ Open OSD menu, select "Source" using the **Menu** button (1) and press the **Select** button (2).
  - ➪ Select "VGA", "DVI digital" or "DVI analog" using **Menu** button (1) and press the **Select** button (2).
  - ➪ Return using **Upper Menu** button (4) until the **Quit OSD** menu is displayed.
  - ➪ Select the "Accept Changes" menu using the **Menu** button (1).
  - ➪ Press the **Select** button (2). The programming is applied.

"ASL/DPMS settings" parameter (if present)

- Open the OSD menu. To do so, press the **SET** button (4) 1x and the **UP** button (2) 3x briefly one after another.

  ➪ The OSD menu opens and is visible.
- Using the **Menu** button (1), select the menu item, "Others", and press the **Select** button (2).
- Using the **Menu** button (1), select the menu item, "ALS/DPMS settings", and press the **Select** button (2).
- Using the **UP** button (1), active the "Off" button (bright point = active).

Programming in the sub-menu "Service Level 2"

NOTE	**The programming must be checked, and if necessary, be programmed.** **The parameters are programmed in Service Level 2.**

Activating Service Level 2

- Activate Service Level 2 Select the "Service Level 2" menu using the **Menu** button (1). After press the **UP** button (2) 1x and then the **Down** button (3) 2x quickly after another.

  ➪ The sub-menu "Service Level 2" becomes active.

"LUT Backlight command" parameter

- Using the **Menu** button (1), select the menu item, "LUT", and press the **Select** button (2).
- Using the **Menu** button (1), select the menu item, "LUT Backlight command", and use the **UP** button (2) to set the "off" value.
- Using **Upper Menu** button (4) to return to the previous menu.

"Select display function" parameter

- Using the **Menu** button (1), select the menu item, "Select display function", and use the **UP** button (2) to set the "3" value.
- Using **Upper Menu** button (4) to return to the previous menu.

"Signal" parameter

- Using the **Menu** button (1), select the menu item, "Others", and press the **Select** button (2).
- Using the **Menu** button (1), select the menu item, "Signal", and use the **UP** button (2) to set the "RGB" value.
- Return by pressing the **Upper Menu** button (4) 4x until the **Quit OSD** menu is displayed.

- Using the **Menu** button (1), select the menu item "Accept changes...", and save the changed programming using the **Select** button (2).

Adjustments

NOTE	**The ambient light sensor is always deactivated!**

Image size and position

NOTE	**Only perform with analog input signal (input signal on DVI analog or VGA)**

Call up the test pattern

NOTE	**The settings described in the following, image size and position (Auto Position Phase Frequency), shall be performed using the HTML test pattern.**

Open local service.

- Open the menu <Utilities>.
- Select "system" under <Source> in the list.
- Select <Shutdown Application>.
- Confirm the message, "Application Shutdown was selected. Are you sure?", by clicking the <OK> button.
  - ➪ The Syngo application is ended.
- Wait until the "Shutdown of Application finished" message is displayed in the service browser window.
- Start Explorer. To do so, select the Windows menu <Start> - <Programs> - <Accessories>, and click the <Windows Explorer> icon.
  - ➪ Windows Explorer opens.
- Open the following path in the Registry Editor: <My Computer> - <Med_System (C:)> - <Testimages>.
- Open the HTML page, "Main.htm" by double-clicking.
  - ➪ The main page of the HTML test images is displayed in Internet Explorer.
  - ➪ On the left side, the selectable HTML test images are listed as HTML links.
  - ➪ By clicking the HTML links, the selected test image is displayed in the browser window.
- Display the SMPTE test image, "ASPIA Test image".
- Using the mouse, place the Internet Explorer window on the monitor to be adjusted, and display as maximized.

Setting Image size and position

- Display the OSD menu with the **Menu** key (1).
- Select the menu group **Auto functions** with the **Menu** key (1) and open it with the **Up** key (2).

NOTE	**For "Auto Position Phase Frequency", a lighted dot means the radio button is when selected.**

- Select **Auto Position Phase Frequency** with the **Menu** key (1) and select the "**On**" radio button (lighted dot = active) **Up** key (2).
- Select **Execute select auto function** with the **Menu** key (1). Start the automatic adjustment of image size and position using the **Up** key (2).
  - ➪ The image frequency and resolution are automatically set.
- Wait until the menu is hidden.
  - ➪ There should be no or minimal stripes visible in the test image.
  - ➪ The white edge and/or the contour of the on-screen legend have to be visible at all sides.

Manually setting the image size and position

NOTE	**Only perform with analog input signal (input signal on DVI analog or VGA)**

NOTE	**Only perform if no correct image is displayed after performing the "Auto Position Phase Frequency" function.** **The image size and position must then be manually set.**

The values for frequency, phase, H position and V position must be set so that the test image has no or only minimal stripes visible. Make sure that the white edge or the contour of the on-screen legend are visible on all sides of the monitor.

- Open the OSD menu (button (1)).
- Locate the "Size/Position" menu using the **Menu** button (1) and select using the **Select** button (2).
- Select the H size, V size, H position and V position in the menu, and set accordingly.
- Press the **Set** key (4) until the **Quit OSD** menu appears.
  - ➪ The **Accept changes** menu item is automatically selected.
- Confirm the prompt **Accept changes** using the **Up** key (2).
  - ➪ The parameters that are set are saved and the OSD menu is exited.

Brightness/Contrast/Backlight with digital input signal (DVI digital)

NOTE	**To set brightness/contrast and backlight, use the Syngo "Service Patient" SMPTE test image.**

Displaying the Syngo "Service Patient" SMPT test image

NOTE	**The test image can be copied to the right-hand monitor using the "A to B" button.**

Open local service and log in.

➪ The "Service Patient" is visible in the patient browser.

- In the patient browser, open the SMPTE test pattern under "Service Patient".

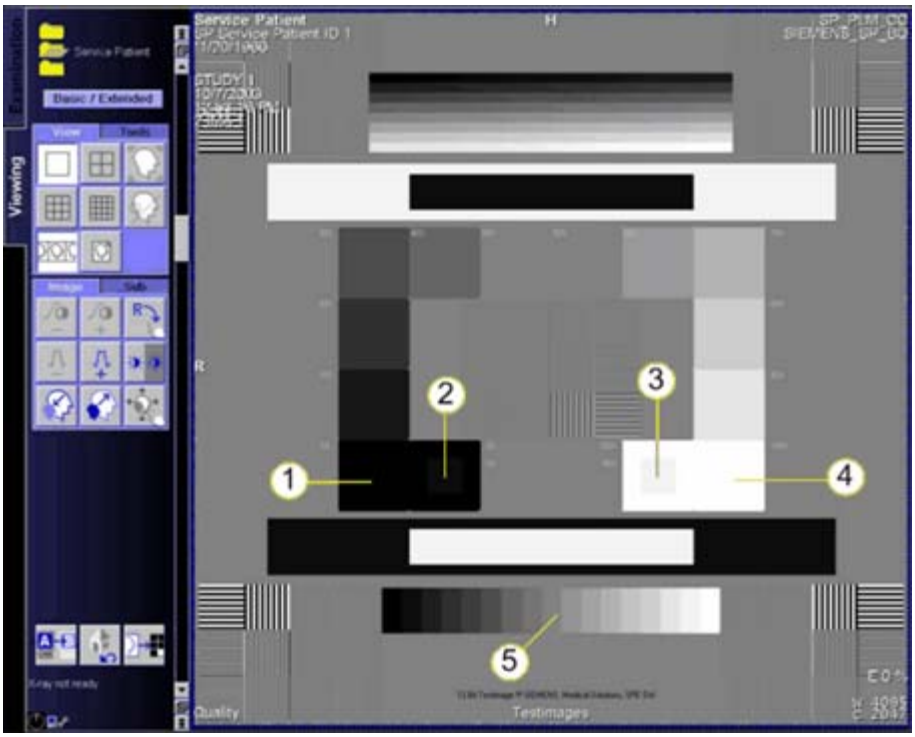


Fig. 50: SMPTE

Pos. 1	0% Field
Pos. 2	5% Field
Pos. 3	95% Field
Pos. 4	100% Field
Pos. 5	Gray levels

Settings with digital input signal

- Using the **Menu** key (1) select **Brightness/Contrast** and press the **Up** key (2).
- Using the **Menu** key (1), select the **Backlight**menu item.

- Set the light density in the 100% field of the SMPTE test image (4/Fig. 50 / p. 70) to **200 +20/-20 cd/m**^{2}using the **Up** and **DOWN** button .
  - ➪ The light density in the 100% field (4/Fig. 50 / p. 70) must be 200 +20/-20 cd/m^2 . The light density in the 0% field (1/Fig. 50 / p. 70) must be < 1cd/m^2. The 5% (2/Fig. 50 / p. 70) and 95% (3/Fig. 50 / p. 70) fields of the SMPTE test image must be visible.
- Check whether the light density of (1/Fig. 50 / p. 70) **< 1 cd/m**^{2} is attained in the in the 0% field.
  - ➪ If necessary, select the **Brightness** menu point using the **Menu** button (1), and set the light density in the 0% field of the SMPTE test image to **< 1 cd/m**^{2} using the **Up** (2) / **Down** (3) button. Therefore change the setting (brightness) down until the light density in the 0% field of the SMPTE test image no longer changes. Afterward, reset upward until there is a first clear change in the light density in the 0% field of the SMPTE test image. Change back down one level. The 5% field of the SMPTE test image must be visible.
- Check whether the maximum light density in the 100% field (4/Fig. 50 / p. 70) has been reached.
  - ➪ If necessary, select the **Contrast** menu point using the **Menu** button (1), and set the "Contrast" using the **Up** (2) / **Down** (3) button. Increase the setting (Contrast) upward until the light density in the 100% field no longer changes the SMPTE test image. Afterward, reduce downward until there is a first clear decrease in light density in the 100% field. Change back up one level. The maximum light density in the 100% field must be 200 +20/-20 cd/m^2 . The 95% field(3/Fig. 50 / p. 70) must be visible in the test image.

NOTE	**If necessary, repeat the settings for Backlight, Brightness and Contrast again.**

- Press the **Set** key (4) until the **Quit OSD** menu appears.
  - ➪ The **Accept changes** menu item is automatically selected.
- Confirm the prompt **Accept changes** using the **Up** key (2).
  - ➪ The parameters that are set are saved and the OSD menu is exited.
  - ➪ Re-check the brightness in the 0% and 100% fields and repeat the adjustments, if needed.
- Lock the OSD menu (General Remark Regarding Use of the OSD Menu / p. 11).

Brightness/Contrast/Backlight with analog input signal (DVI analog / VGA)

NOTE	**To set brightness/contrast and backlight, use the Syngo "Service Patient" SMPTE test image.**

Displaying the Syngo "Service Patient" SMPT test image

NOTE	**The test image can be copied to the right-hand monitor using the "A to B" button.**

Open the "Service Menu" and log in.

➪ The "Service Patient" is visible in the patient browser.

- In the patient browser, open the SMPTE test pattern under "Service Patient".

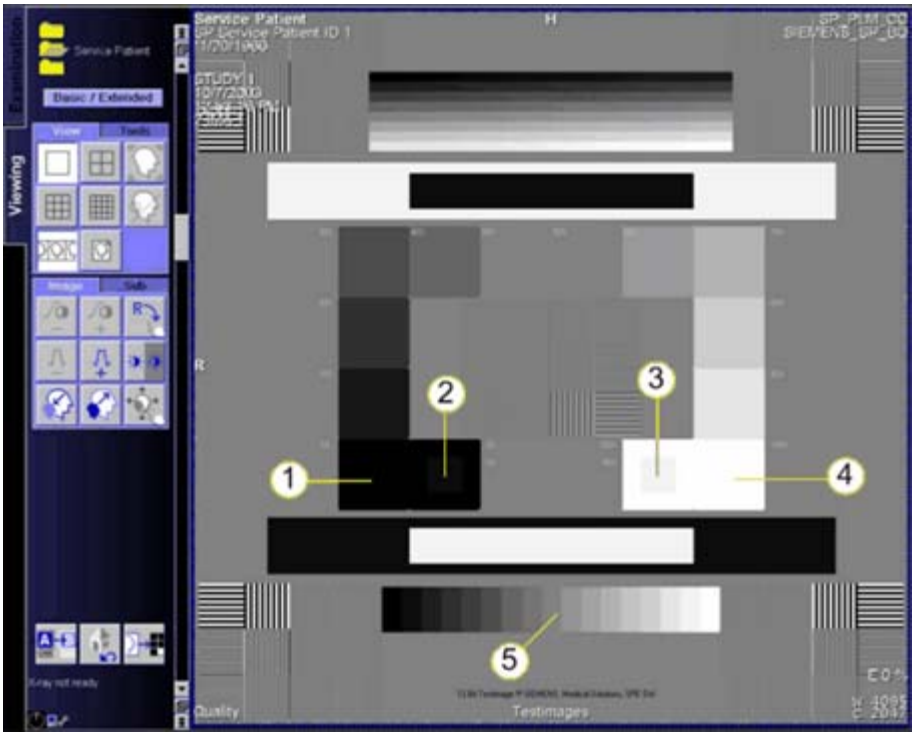


Fig. 51: SMPTE

Pos. 1	0% Field
Pos. 2	5% Field
Pos. 3	95% Field
Pos. 4	100% Field
Pos. 5	Gray levels

Settings with analog input signal

- Using the **Menu** key (1) select **Brightness/Contrast** and press the **Up** key (2).
- Using the **Menu** key (1), select the **Brightness** menu item.
- Set the light density in the 0% field (1/Fig. 51 / p. 72) to **< 1 cd/m**^{2} using the **Up** (2) / **Down** (3) button. Therefore change the setting (brightness) down until the light density in the 0% field of the SMPTE test image no longer changes. Afterward, reset upward until there is a first clear change in the light density in the 0% field of the SMPTE test image. Change back down one level. The 5% field of the SMPTE test image must be visible.

  ➪ The light density in the 0% field (1/Fig. 51 / p. 72) must be < 1cd/m^2. The 5% field (2/Fig. 51 / p. 72) of the SMPTE test image must be visible.

- Using the **Menu** key (1), select the **Contrast**menu item.
- Set the light density in the 100% field (4/Fig. 51 / p. 72) using the **Up** (2) / **Down** (3) button. Increase the setting (Contrast) upward until the light density in the 100% field no longer changes the SMPTE test image. Afterward, reduce downward until there is a first clear decrease in light density in the 100% field. Change back up one level.
  - ➪ The 95% field(3/Fig. 51 / p. 72) must be visible in the test image.
- Using the **Menu** key (1), select the **Backlight**menu item.
- Set the light density in the 100% field of the SMPTE test image (4/Fig. 51 / p. 72) to **200 +20/-20 cd/m**^{2}using the **Up** and **DOWN** button .
  - ➪ The light density in the 100% field must be 200 +20/-20 cd/m^2 . The light density in the 0% field must be < 1cd/m^2. The 5% and 95% fields of the SMPTE test image must be visible.

NOTE	**If necessary, repeat the settings for Backlight, Brightness and Contrast again.**

- Press the **Set** key (4) until the **Quit OSD** menu appears.
  - ➪ The **Accept changes** menu item is automatically selected.
- Confirm the prompt **Accept changes** using the **Up** key (2).
  - ➪ The parameters that are set are saved and the OSD menu is exited.
  - ➪ Re-check the brightness in the 0% and 100% fields and repeat the adjustments, if needed.
- Lock the OSD menu (General Remark Regarding Use of the OSD Menu / p. 11).

Tab. 9 Changes (Ver_02) to Previous Version.

Chapter	Section	Changes
Chap. 6	All	Revised